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A-4 SKYHAWK

D&S VOL. 32

COVERS ALL U.S. NAVY & USMC VERSIONS

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in detail & scale

Bert Kinzey

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ABOUT THE AUTHOR

Bert Kinzey, author and president of Detail & Scale, Inc., was born in Richmond, Virginia in 1945. The following year his family moved to Blacksburg, Virginia where his father became a professor of architecture at Virginia Tech (VPI). Until he was about six years old, Bert was often frightened by the loud piston-driven military fighters that sometimes flew low over his home while he was outside playing. On more than one occasion he came running into the house extremely frightened by an aircraft that had just flown over.

His father took him to the VPI airport, where cadets were learning to fly on J-3 Piper Cubs, and arranged for him to go for a flight. Bert sat on his father's lap for a short trip around Blacksburg, and that forever ended his fear of airplanes. Later, Bert's father built a balsa and tissue model of the J-3 Cub, and Bert's interest in modeling began.

Bert's fear of aircraft soon gave way to a love of aviation, and he began scale modeling. Bert looked at modeling (and still does) not as a hobby in and of itself, but as a small facet of his overall interest

The author in the rear seat of an F-5F after returning from a Red Flag mission.

in aviation.

In 1959 his family moved to Gainesville, Florida, where his aviation interest took second place to his trumpet playing in high school. In 1964, he graduated from P.K. Yonge High School and returned to Virginia Tech specifically to fulfill his lifetime dream to be in the Virginia Tech Regimental Band—The "Highty Tighties."

Upon graduation he was commissioned a second lieutenant in the Army, and he spent almost eight years as an army officer. During this time he commanded a Hawk guided missile battery in Korea and later wrote and taught classes in airpower, the Soviet air threat, and air defense suppression at the Army's Air Defense School at Ft. Bliss, Texas.

In August 1976, he resigned from active duty in the Army, but his reputation as being knowledgeable in all aspects of military airpower led to a job offer as a civilian with the Department of the Army. He served in this position for four years as a "subject matter expert" in military airpower and was responsible for the development of the Army's new program on aircraft identification, the first in the world to feature dynamic simulation. During this time he started Detail & Scale as a part-time business to provide detailed reference material on military aircraft.

Detail & Scale became so successful that Bert resigned from his position with the Army to devote full time to his new company. Since then he has written several books as well as articles for several magazines. He is also an avid modeler and member of the International Plastic Modelers Society (IPMS). In July 1982, he was presented with a special award by IPMS/USA in recognition for his contributions to the society. He is also a member of the American Aviation Historical Society, and the Aviation and Space Writers Association.

As a youngster who feared airplanes, it is ironic that Bert should now be so involved with aviation. He is a licensed pilot, and lives with his wife, Lynda, and their two children, Jan and Chip, in Peachtree City, Georgia, near Atlanta.

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A-4 SKYHAWK

in detail & scale

Bert Kinzey

KALMBACH BOOKS

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Front cover: With multiple ejector racks attached to its centerline and inboard wing pylons, this early A-4E is loaded with eighteen Mk 81 bombs. Bullpup missiles are attached to the outboard pylons. (U.S. Navy)

Rear cover: The cockpit details in an A-4F "Super Fox" are revealed in this photograph. The aircraft belongs to VFC-13 "Saints," who are based at NAS Miramar, California. VFC-13 (formerly VC-13) is a reserve unit with an adversary mission.

INTRODUCTION

This head-on view of a TA-4J reveals the Skyhawk's stance on its landing gear which is relatively long for a carrier-based aircraft. Other features of the A-4, such as the intakes, in-flight refueling probe, and extended leading edge slats are also visible. Note the parallel front windscreen framing that was common to the two-seat and A-4M versions. (Cockle)

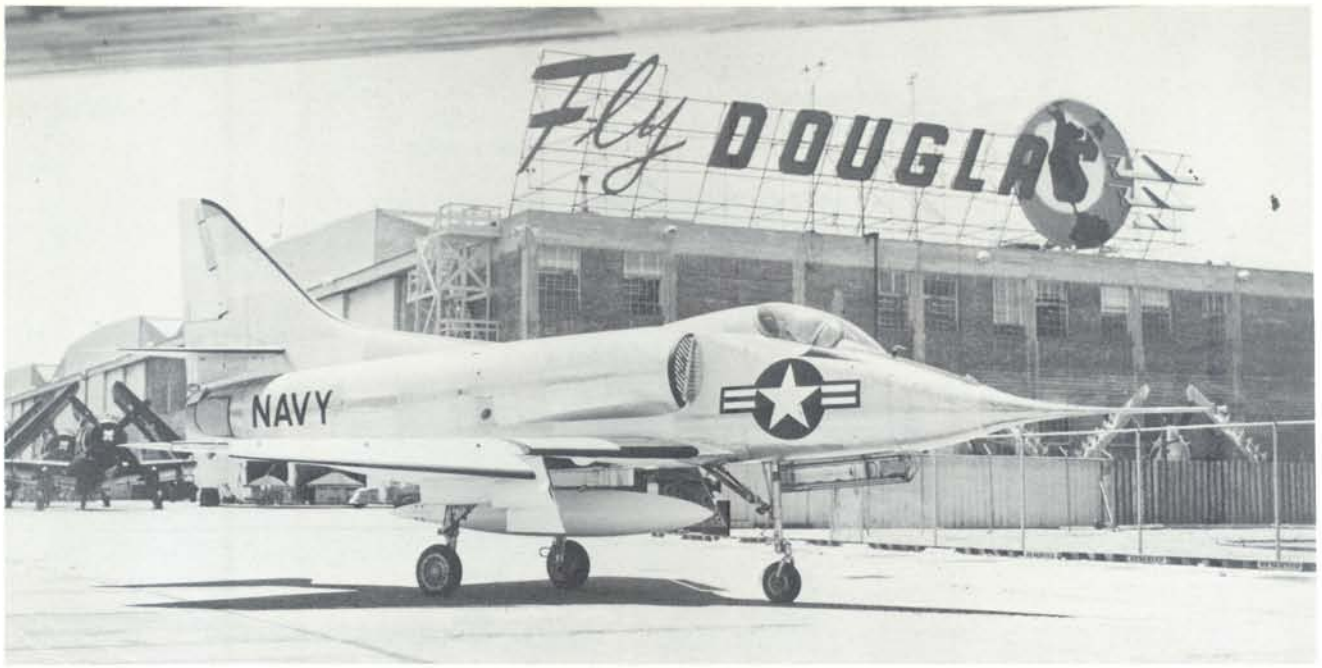
With the A-4 Skyhawk, Edward Heinemann and his design team proved that bigger and more sophisticated was not necessarily better when it came to designing combat aircraft. At about the same time that the Douglas Aircraft Company was also designing the largest carrier-based aircraft ever built up to that time in the form of the A-3 Skywarrior, Ed Heinemann proved that small and simple were still qualities that could be used effectively in designing what was to become one of the most successful aircraft ever produced. Having been contracted for in June 21, 1952, and first flown two years later, the Skyhawk has enjoyed an operational service life that has now exceeded thirty-five years.

On the pages that follow is a close-up and detailed look at all U.S. Navy and Marine versions of the Skyhawk. Most of the detailed photographs that are included were taken specifically for this publication. As this book was being prepared, a real space problem was encountered. There just seemed to be too much to try to fit into the standard format of a Detail & Scale Series monograph. At several times, splitting the coverage into two volumes was considered, but did not seem practical. The most logical split seemed to be between single and two-seat versions, but since most details, such as wings, landing gear, most fuselage details, tail details, ordnance, and engines were all similar on both single and two-seat A-4s, this did not work out. Why show all of these details twice? It seemed that there was too much for one book, and too little for two. The solution was to do one book that was limited almost exclusively to the U.S. versions of the Skyhawk. While mention is made of the foreign sales, the scope of the book really includes only the U.S. Navy and Marine Corps A-4s. After a historical summary, each version is covered briefly in order to explain differences between the Skyhawk variants. Over two dozen pages are devoted to A-4 details, to include canopies, ejection seats, cockpits, engines, landing gear, and details of the wings, fuselage, and tail. Skyhawk armament is also illustrated.

There have been so many model kits of the Skyhawk issued over the years that this also caused a space problem. If every kit were reviewed in the usual manner, the modeler's section would have taken up the entire book. By reviewing similar issues by the same company together, and only completely reviewing the most recent and best kits in each scale, while making general comments on the others, we have been able to provide a complete modeler's section without using too much space. In spite of this, the modeler's section is still the longest ever included in any Detail & Scale publication.

With careful selection of photographs to show details and the differences between the versions, the following pages provide the most complete look at Skyhawk details ever published. We have planned this book so that aviation enthusiasts, historians, and scale modelers will find the information, photographs, and drawings to be interesting, informative, and valuable.

HISTORICAL SUMMARY



The prototype A-4 is shown here in front of the Douglas plant. Note the long pointed nose and instrumentation probe. Also note the lack of the "sugar scoop" fairing above the engine exhaust. (Douglas Aircraft via Jones)

The Background

In the early 1950s, a primary focus (if not **the** primary focus) of American military planning was the ability to deliver nuclear weapons against a potential enemy, specifically the Soviet Union, who, at that time, was the only nation in the world, other than the United States, with a nuclear capability. One of the most debated aspects of nuclear warfare was how best to deliver the nuclear weapon to its target. Intercontinental ballistic missiles (ICBMs) and intermediate range ballistic missiles (IRBMs) were already on the drawing board, but their operational capability as a viable delivery system was still several years away. In the meantime, the U.S. Air Force was promoting large, long range bombers like the B-36 and the then-new B-52 as the best delivery system. Smaller, medium range bombers like the B-47 were also included in the Strategic Air Command's growing nuclear arsenal. For a while it seemed as though it would take an aircraft considerably larger than a standard fighter to deliver a nuclear weapon. But things were beginning to change as technology was making nuclear bombs smaller and smaller.

At this same time, the jet engine was replacing those with propellers on many combat aircraft. This was jeopardizing the existence of the aircraft carrier in the U.S. Navy, but radical changes in the designs of both carriers and aircraft solved the many problems associated with operating jets from ships. But the Navy also knew that if its expensive aircraft carriers were to survive military spending cuts, it needed to play an important part in America's design of strategic nuclear deterrence, and would have to be able to fight in a nuclear war if necessary. The Navy's early attempt to make its carriers nuclear capable involved the North American AJ Savage, a rather large aircraft by carrier-based standards of that day, and one that was propelled by two reciprocating engines and one jet engine. Its survivability in the event of a nuclear war was questionable at best. One of its intended replacements, the much more capable Douglas A3D Skywarrior, was a twin jet, swept wing bomber that was the largest carrier-based aircraft ever built, and because of its size, only limited numbers of them could be deployed on a given carrier. This was particularly true of the smaller, although modernized, Essex class. In 1952, the Navy's first true large deck carrier, the USS Forrestal, was still four years away, and it would be another ten years before the large deck carriers were available in sufficient numbers to make them the true mainstays of the Navy's carrier forces. During those years, the modernized Essex class carriers and the three Midway class ships would provide most of the sea-based airpower fo the U.S. Navy. It was necessary to find a smaller aircraft that would be capable of delivering a nuclear weapon.

The Navy was not alone in wanting to develop fighter-sized aircraft with a nuclear capability. The Air Force was also studying the same concept, but unlike the Navy, the Air Force's idea and definition of fighters included fighter-interceptors and fighter-bombers. Fighter-interceptors were designed to shoot down enemy aircraft, primarily bombers, and fighter-bombers could fight other aircraft or drop bombs on ground targets. The Navy wanted to move in a direction where fighters were designed for the air-superiority (fleet defense) mission. In practice the Navy did design and operate several types of fighters in the late forties and the fifties that served in both the air-to-air and air-to-surface roles. Among these

were the F9F Panther, F2H Banshee series, FJ Fury series, the F3H Demon, the F9F Cougar, and the F7U Cutlass, among others. But clearly, the Navy wanted a fighter optimized for the air superiority mission, and headed in that direction with the F4D Skyray and the F8U Crusader that followed. Neither of these aircraft had any real capability to attack ground targets designed into them at the start. This philosophy remains today in the form of the F-14 Tomcat, but faced with cost constraints and the necessity for multi-role aircraft, the other present Naval fighter, the F/A-18 Hornet, falls into the fighter-bomber category.

In 1952, the Navy's idea of an aircraft to hit surface targets was placed in a category that did not even exist in the Air Force. This was the attack aircraft, and this type of airplane had already replaced the World War II dive and torpedo bombers in the Navy's carrier air groups. Unlike the fighter-bomber, the attack aircraft was optimized to hit surface targets, and had minimal ability to engage another aircraft in the air. Primarily, it did not have the speed or avionics necessary to consistently fight and win against an adversary in the air. This is not to say that an attack aircraft was absolutely helpless against another aircraft, but the design of such an aircraft was optimized to carry heavy loads over long distances, and its equipment was intended to accurately deliver those ordnance loads against targets on the ground. Accordingly, training in attack squadrons was oriented almost exclusively to strafing, bombing, and firing rockets and missiles against ground targets. Today, much more time is spent by attack pilots training how to defend themselves against enemy aircraft.

At the forefront of Navy attack aircraft in the early 1950s was the single-engine, propeller-driven AD Skyraider series that could carry a load of ordnance that rivaled the four-engined B-17 of World War II. Over a dozen years later in a place called Vietnam, the value of this workhorse of an attack aircraft would be illustrated when the Air Force acquired some from the Navy for use in that war. Another of the Navy's attack aircraft, the A-7 Corsair II would also be purchased in numbers by the Air Force. But the Skyraider was not a nuclear weapons carrier, so the first nuclear-capable, shipboard aircraft belonged to the Navy's heavy attack squadrons. Newer, light and medium attack aircraft were desired, and the Navy wanted these to be nuclear capable as well.

This explanation of fighter-interceptors, fighter-bombers, air-superiority fighters, and attack aircraft is necessarily over-simplified here due to space considerations. A large volume could be written about it, and, in most cases, aircraft do not fall perfectly and exclusively into one category. The F8U Crusader did deliver bombs, rockets, and missiles against targets in Vietnam, and there were other exceptions to philosophies when needs in a given situation dictated the use of an aircraft in a role for which it was not originally designed, or when a given airframe's design proved quite capable for adaptation to another mission. A fine example of this was the F-4 Phantom, designed by the Navy as a fleet defense fighter, but possessing great capabilities to attack ground targets. It is rare when an aircraft is designed for one purpose, and is used only for that purpose throughout its operational life. The F-102 and F-106 interceptors are probably as good examples of this as there have ever been. Neither of these aircraft could attack and destroy much of a target on the ground short of crashing into it! Nevertheless, this background of design philosophies and aircraft types is provided so that the reader can understand just where the Skyhawk fits in and why it was designed.

The Design

With the A3D intended to become the Navy's heavy attack aircraft capable of delivering nuclear weapons from aircraft carriers, the Bureau of Aeronautics was interested in developing a jet powered replacement for the Douglas Skyraider. It should be remembered that this was before the days of Robert Strange McNamara and his ideas of "commonality." What the Navy wanted was an aircraft that was optimized for a specific mission. It had to have a maximum speed in excess of 500 miles per hour, must carry a 2000 pound bomb load over a 460-mile combat radius, and cost less than $1,000,000 each. It should be noted that the first five-hundred Skyhawks cost $860,000 apiece, well below the target figure, but you would never hear about that in the press. It also had to be able to perform its mission without fighter escort in an environment where it could expect to meet enemy opposition on the ground and in the air. Ed Heinemann convinced the Navy that a small, simple, and lightweight attack aircraft could be designed to fulfill their requirements. A contract was issued June 21, 1952, for two prototypes, and further contracts for nineteen pre-production aircraft followed only three months later in October.

Edward Henry Heinemann joined the Douglas Aircraft Company in 1927, and began a career that would make him one of the most famous aircraft designers in American aviation history. In 1954 he was co-winner of the Collier Trophy which was awarded for the greatest American achievement in aviation. Although he designed, or played a significant part in two dozen aircraft designs from the TBD Devastor to the Skystreak research aircraft, and the SBD Dauntless to the F4D Skyray, none of his designs would be more associated with him than the A4D Skyhawk, an aircraft that was often referred to as "Heinemann's hot rod"! By every measure the Skyhawk has to be considered one of the most successful designs in aviation history, and is a credit to Mr. Heinemann and his design team. It was both admired and respected by the pilots who flew it and the ground crews that maintained it. Although designed for a specific mission, that of delivering both conventional and nuclear weapons against surface targets, the Skyhawk's versatility permitted it to perform other missions as well. These varied roles consisted of flying tanker, fast observation aircraft, trainer, electronic threat simulator, and "make-believe" MiG, providing a realistic adversary for U.S. pilots to fly and fight against in dissimilar air combat maneuvering exercises.

Edward Henry Heinemann, engineer and designer, has been honored by a plaque in the U.S. Naval Aviation Museum's Hall of Honor. In addition to the Skyhawk, Heinemann is responsible for the design of many other aircraft including the famous Dauntless dive bomber, the Skyraider, Skyknight, and the Skystreak research aircraft.

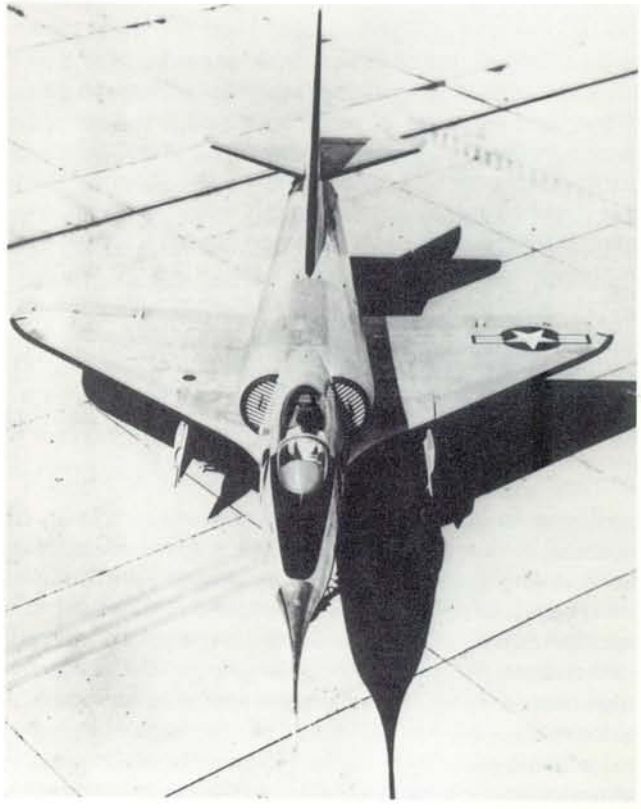
But Heinemann's work was so sound that the Skyhawk's basic design never changed throughout its operational life which now spans over thirty-five years.

Heinemann went against the prevailing trends of aircraft design with the A4D. Instead of making it larger and more complex, he found every way possible to make it small, light, and simple. All three of these principles worked together. For example, the aircraft was small and therefore only required a small wing. In fact, it was so small that it did not even need to be folded for storage on an aircraft carrier. This eliminated the wing folding hinge and mechanism common to carrier-based aircraft, which in turn, reduced aircraft weight and made the wing design less complex. This then meant that the Skyhawk required less maintenance.

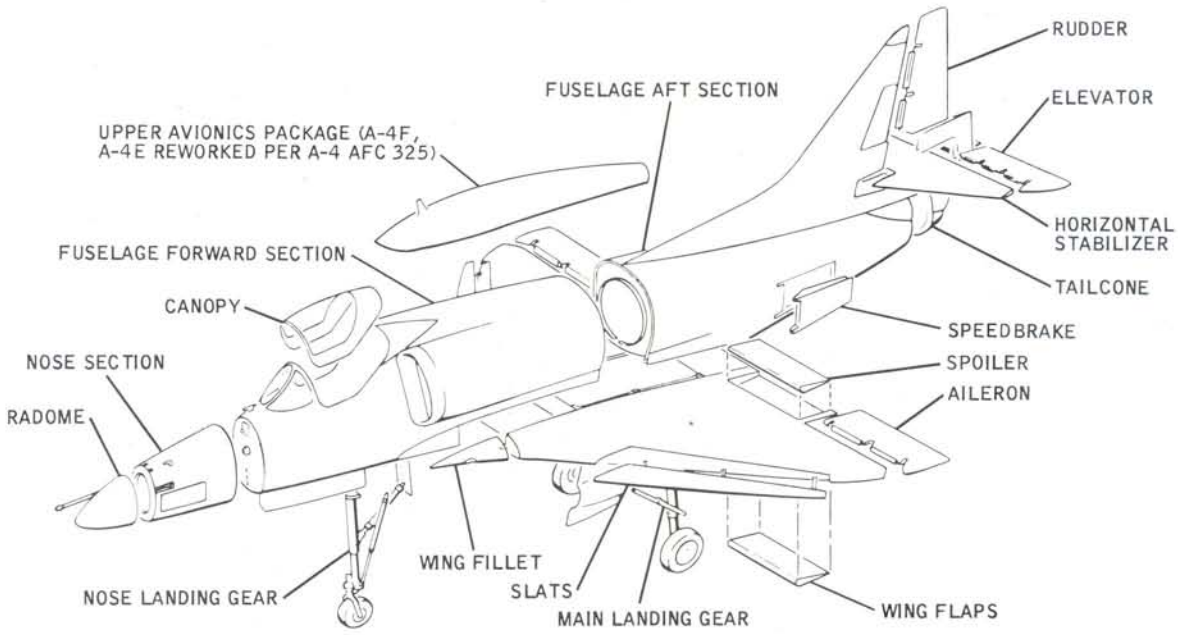
There were many other examples of Heinemann's ingenuity when it came to saving weight and space, and therefore simplifying the A4D's design. For example, the landing gear struts were mounted at the aft-most point in the wheel wells and retracted forward. They operated hydraulically, but there was no back-up hydraulic system. In the event of hydraulic failure, the landing gear could be forced down into the air stream mechanically, and the pressure of the air would cause it to fully extend and lock down. A few positive G's on the aircraft would help extend any stubborn gear. Again, the elimination of a back-up hydraulic system meant a lighter and simpler aircraft.

The flight controls used a dual hydraulic system, but they could be operated by only one system. On early Skyhawk variants, the control column was extendable by some twelve inches. This gave the pilot more leverage if the hydraulics went out, and allowed him to fly the aircraft through the basic unaided mechanical linkage. Throughout the A4D's design, the concepts of keeping it simple, small, and light were applied.

This design was basically divided into three parts. These included the wing, forward fuselage, and aft fuselage. The wing was a modified delta planform with a low aspect ratio and an area of 260 square feet. The trailing edge had ailerons of a constant chord on the outer half and split flaps, also of constant chord, on the inner half. The ailerons had a small, pointed portion that extended forward of the hinge line at the tip for balance. A trim tab, adjustable from the cockpit, was on the left aileron only. On the A-4F, -Ms, and TA-4s, as well as on some foreign aircraft, spoilers were added above the flaps. Sweep at quarter chord was thirty-three degrees. On the leading edge of the wing were slats that extended over approximately seventy percent of the span. These slats were controlled only by their own weight and the airflow over the wing. When the aircraft was on the ground or flying at slow speeds, the weight of the slats caused them to fall



This overhead view of the prototype shows the modified delta planform of the Skyhawk's design. Note also the lack of framing on the windscreen. (National Archives)



The major airframe components of the A-4E and A-4F are shown in this drawing. *(U.S. Navy)*

forward on their tracks. In this forward or extended position, they provided the extra lift they were intended to. As the aircraft increased speed through the air, the air flow would cause the slats to retract flush with the wing's leading edge. Normally, when the aircraft was on the ground, the slats would be forward or extended, but they could be mechanically held in the retracted position. The Blue Angels and some adversary A-4s had their slats locked up. This was to prevent the improbable, but potentially deadly, situation of having one slat extend and the other fail to extend (or one retract and the other fail to) when very close to the ground or in tight formation. If this happened, the resulting extra lift from the wing with the slat extended could cause the aircraft to roll and yaw enough to cause an accident. A few such accidents did happen to Skyhawks, and one of the preflight checks was to insure that the slats were moving freely on their tracks.

The wing spar was machined in one piece, and formed a 568-gallon fuel tank. Another 232 gallons could be carried in a fuselage tank. Three hardpoints were provided, one on the centerline and one under each wing. Additional fuel could be carried on external tanks attached to these hardpoints. In place of fuel tanks, up to 5975 pounds of ordnance could be carried, almost three times that specified by the Navy. The internal armament was also located in the wings, at the wing roots, and consisted of two Colt Mk 12, 20mm cannon with 100 rounds of ammunition each in rotating drums. This was increased to 200 rounds in the A-4M. Lastly, the entire main landing gear was located in the wings, to include struts, wheels, and wells. This complete wing assembly was attached to the fuselage with ten bolts.

The forward and aft fuselage sections joined in the middle, and the aft section could be easily removed to provide access to the engine and to allow for a complete engine change. The forward section housed the cockpit which was simple and small like the rest of the aircraft. To provide as much room as possible in the cockpit, while utilizing a minimal space, a thick skin of .10 inch was used without the usual stiffeners that would have reduced space in the cockpit from side to side. The rest of the aircraft had a skin of .064 inch thickness. The ejection seat had no shoulder harness. Instead, the pilot wore a torso harness that hooked to four buckles on the seat. The "Mae West" type of life vest was replaced with a new waist life preserver.

On the right side of the forward fuselage section was a pop-out emergency electrical generator that had a two-bladed propeller. This propeller was turned by the air stream to generate electrical power in the event of an emergency.

The aft fuselage section housed the Wright J65-W-4 engine with 7,700 pounds of static thrust and its tail pipe. (The prototypes had the J65-W-2 with 7,000 pounds of thrust.) Great speed and acceleration was not an important factor, so no afterburner was added. These thrust augmentation devices were just entering the inventory at that time. A speed brake was located on each side of the aft fuselage section. The vertical tail was an integral part of the aft fuselage section, and had a standard rudder which was the only flight control surface that was not of constant chord. A fully adjustable horizontal stabilizer was electrically operated throughout the entire flight regime, and had full span elevators. Like the ailerons,

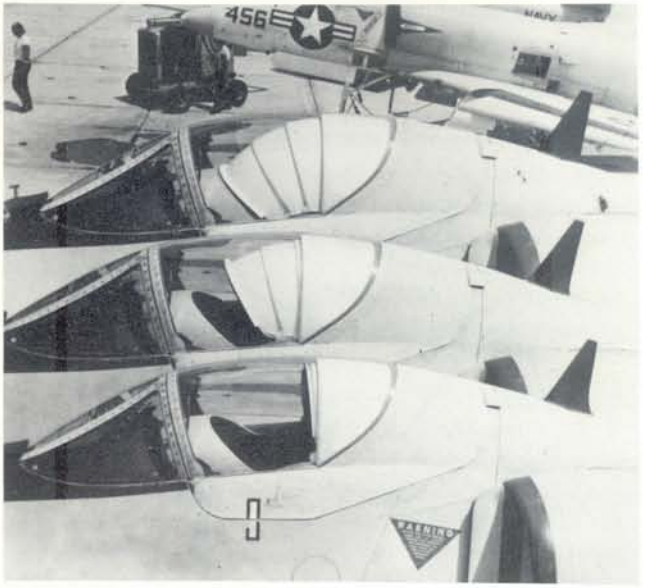
This in-flight photograph shows the prototype on a later test flight. The "sugar scoop" fairing has been added above the exhaust, and is visible just below the horizontal tail plane. The instrumentation probe has been retained, and framing has been added to the windscreen.
(National Archives)

these elevators had horns that extended forward of the hinge line at the tips to provide balance.

Skyhawk Variants

The first XA4D-1, 137812, took off on its maiden flight on June 22, 1954, with Douglas test pilot Rob Rahn at the controls. Initial flight testing revealed a buffet that was cured by the addition of a fairing called the "sugar scoop" between the exhaust pipe and the vertical tail. The aircraft easily met or exceeded all major requirements, and proved to be very maneuverable. The roll rate was no less than 720 degrees per second. Flight evaluation proved that the design was excellent, and very little in the way of changes had to be made before the aircraft entered production and service. The first few production aircraft were used for test and evaluation, and the "X" designation was soon dropped from the first aircraft.

A4D-1, 147814, was used to set a world speed record. It is shown here on an early flight. Note the lack of a tail hook, "sugar scoop" fairing, and instrumentation probe. This underside view also provides a good look at the fairings for the main landing gear. A color photograph of this record-setting aircraft can be found on page 33.
(National Archives)



The A-4 was designed to deliver a nuclear weapon. To protect the pilot from effects of the blast, a special thermal shield could be fitted into the cockpit. This composite exposure shows the shield in the open, intermediate, and fully closed positions. *(U.S. Navy)*

The usual evaluation process continued without any significant problems being discovered, and initial carrier qualifications began aboard the USS Ticonderoga, CVA-14, in September 1955. The following month the Skyhawk announced itself to the world when, on October 15, LT Gordon Gray flew the third A4D-1, 137814, to a new world speed record at low altitude over a closed 500 kilometer course. His speed was 695.127 miles per hour, a record that stood for many years. This was the first time an attack aircraft had ever held this record.

One year later, in October 1956, squadron deliveries

LT Gordon Gray set a world speed record over a 500 kilometer closed course in the Skyhawk on October 15, 1955. The low level speed record was set at 695.163 miles per hour, and was flown at an altitude of 100 meters.
(National Archives)

A4D-1, 137823, is shown here with a nuclear "shape" attached to the centerline station. (National Archives)

began, with VA-72 becoming the first unit to receive the A4D-1. The first Marine squadron to get the Skyhawk was VMA-224 at El Toro MCAS, California. This began a Douglas monopoly on Naval attack aircraft. The Skyraider was already in service, and now the small A4D Skyhawk and the large A3D Skywarrior were becoming operational. This made Douglas Aircraft a busy builder and parts supplier for attack aircraft. With the F4D Skyray also being a Douglas product, it was often possible for a Naval aviator to fly over his carrier and look down to see only Douglas-built aircraft on the flight deck! Photos of aircraft carriers from the mid-fifties also show this to be the case.

The A4D-1 was only the first of many versions of the highly successful Skyhawk series. It was followed by the A4D-2 that added inflight refueling capabilities, and the A4D-2N, which provided a limited ability for all-weather and night operations. The A4D-3 and A4D-4 versions were the A4D-2 and -2N variants with the Pratt & Whitney two-spool J52 turbojet replacing the Wright J65. The Pratt & Whitney engine was lighter and offered a much improved fuel consumption over the J65, increasing the range over twenty-five percent. While the J52 would find its way into many future Skyhawks, it would not be with the A4D-3 or -4, since both versions were cancelled. The more capable A4D-5 became the first Pratt & Whitney-powered variant.

It is necessary to digress a moment at this point and discuss the designation changes that came about as a result of a Department of Defense directive in 1962 that standardized aircraft designations between services. Skyhawk versions produced to that time were redesignated as follows:

A4D-1	to A-4A
A4D-2	to A-4B
A4D-2N	to A-4C
A4D-5	to A-4E

The A-4D designation under the new system, which would have been applied to the cancelled A4D-3, was not used, and this avoided confusion with the A4D designation under the old system. Future Skyhawks were designated only under the new system.

The last single-seat Skyhawk designed and built new for the U.S. Navy was the A-4F, which featured a hump on top of the fuselage to provide space for additional avionics. Many people, including Ed Heinemann, thought that this hump ruined the otherwise appealing and clean lines of the A-4, but there were those who liked the more sinister appearance of the Skyhawk once the hump was added. This avionics hump was retro-fitted to many A-4Es, and included on one hundred A-4Cs that were rebuilt to A-4L standards. In abbreviated form, it even appeared on some two-seat versions.

One more single-seater would be built for American forces before the Skyhawk production closed down. This was the A-4M, which was produced specifically for the

The first production version of the Skyhawk was the A4D-1, later designated the A-4A. It could be distinguished from other versions of the Skyhawk by its standard, non-ribbed rudder, and its lack of a refueling probe.

(Douglas Aircraft via Jones)

Skyhawks, such as this A-4C that was photographed aboard the USS Randolph, CVS-15, were assigned to the anti-submarine carriers of the Essex class. They performed the self-defense or combat air patrol mission for the carrier, as evidenced by the AIM-9 Sidewinder missile under the wing of the Skyhawk, and also retained their attack capabilities. This aircraft is from VA-36, and the photograph is dated December 15, 1963. (U.S. Navy)

Marines. With twice the 20mm ammunition load, a self-starter for the engine, and upgraded avionics, this version was the most potent of all American versions, and formed the basis for later export variants.

The first two-seat version was the TA-4E, which was ordered in 1964. It was based on an A-4E airframe that was stretched some twenty-eight inches in the forward fuselage section, and it was intended to replace the TF-9J Cougar. Powered by the J52-P-8A with 9,300 pounds of thrust, it first flew on June 30, 1965. A second prototype flew on August 2, and shortly thereafter the designation was changed to TA-4F. While the TA-4F retained its combat capabilities, the later TA-4J, which was practically identical in appearance, was intended only to be a trainer. Specialized two-seat versions to include the EA-4F and OA-4M were converted from standard TA-4F airframes.

Each of the American versions of the Skyhawk are studied in greater detail beginning on page 12. Major improvements and differences are pointed out for each variant. This is followed by a look at Skyhawk details that extends from page 26 to page 32, and from page 45 to page 59.

Foreign Skyhawks

Although the primary focus of this book is the Skyhawk variants produced for use by the U.S. Navy and Marines, it is also appropriate to take a brief look here at the foreign sales, since the A-4 series has had a remarkable success in the service of other nations. Some variants were rebuilt older airframes formerly used by the U.S. Navy and Marines, and others were built new for specific nations. We will summarize the use by each foreign nation in alphabetical order. Photographs of some of these aircraft are provided on page 40.

Argentina, one of the foreign nations to use the Skyhawk in combat during the battle over the Falkland Islands, received fifty refurbished A-4Bs that were designated A-4Ps. These aircraft were intended for land-based use only. For their one aircraft carrier, 25 de Mayo, the Argentineans acquired an additional sixteen A-4Qs which were also rebuilt from A-4B airframes. The most capable version, and the one used in the battle for the Falklands, was also designated A-4Q, but was rebuilt from existing A-4C aircraft. Twenty-five of these A-4Qs were sold to Argentina.

Australia received eight A-4Gs and two TA-4Gs in 1967. These were basically A-4Fs and TA-4Fs respectively. A like number of each was obtained in 1971.

In 1979 Indonesia bought fourteen A-4Es and two TA-4Hs from Israel. Two years later they received another sixteen U.S. Navy A-4Es.

By far, Israel has used the Skyhawk in greater numbers than any nation except the United States. They have used their A-4s extensively in combat in the Middle East. Their first purchase was the A-4H which was similar to the American A-4F. It had an enlarged square-tipped vertical tail and 30mm DEFA cannon. Two TA-4Hs were also acquired. Forty-two A-4Hs and ten TA-4Hs were added in 1969, and sixty former USN A-4Es and seventeen TA-4Js were delivered beginning in that year. In 1972 Israel began to receive what would eventually total one hundred and seventeen A-4Ns which were based on the American A-4M and called Skyhawk IIs. Some of these aircraft were fitted with a longer tailpipe as an IR suppression measure.

Kuwait purchased thirty A-4Ms which were redesignated A-4KUs, and six TA-4KUs. The first of these flew in 1976, and all were built new for that country.

Malaysia obtained a total of forty Skyhawks which included thirty-four A-4PTMs and six TA-4PTMs. The single-seaters were rebuilt from former A-4C and A-4L airframes for Malaysia by Grumman.

Beginning in 1970, New Zealand purchased ten single-seat A-4Ks and four two-seat TA-4Ks which were based on the A-4F and TA-4F respectively. However, they had the square tail fin and parabrake housing as on the A-4M. Additionally, New Zealand acquired six surplus A-4Gs from Australia.

Singapore obtained forty A-4S Skyhawks that were refurbished from former U.S. Navy A-4Bs. The upgraded aircraft were brought up to A-4M standards in many areas. Easily one of the most interesting Skyhawk variants, and certainly the most unique, was the TA-4S, seven of which were built from two A-4B airframes each. These two-seaters had two single-seat canopies in tandem rather than the long single canopy covering both cockpits as on all other two-seat versions of the Skyhawk.

The Skyhawk in Combat

Ever since August 1964, when the first retaliatory raids were flown against the gunboat bases in the Vietnam war, the Skyhawk has been engaged in almost endless combat somewhere on the face of the earth. Both the Navy and Marines used the A-4 throughout the entire war in Southeast Asia. The Israelis have flown it during the seemingly endless conflict in the Middle East, and Argentina used it against the British while fighting to gain con-

The Skyhawk saw extensive action in the skies over Vietnam, attacking the most heavily defended targets in history. Here, a plane captain helps a pilot strap into the cockpit of an A-4C from VA-113. The action took place aboard the USS Kitty Hawk, CVA-63, while the ship was steaming in the Gulf of Tonkin on February 2, 1966. Six 500-pound, high drag, Snakeye bombs are attached to a multiple ejector rack on the centerline station.

(U.S. Navy)

trol of the Falkland Islands. The A-4 was the most extensively used aircraft by Argentina during the Falklands War, and it did score some successes. However, the British claim to have destroyed up to forty-five of them. While this may be a little on the high side, it seems certain that Argentina's claims that only eighteen to twenty were lost is simply untrue. The truth probably is somewhere between these claims, and is closer to the British figures. Many of these losses were not due to the aircraft itself, but the poor use of it in planning, coordination, and execution on the part of Argentina.

On the other hand, the Israeli use of the Skyhawk has been much more successful, being considerably better planned and executed than that of Argentina. The Israeli pilots are among the best in the world, while the Argentine pilots are not. Unfortunately, but because of a real necessity, Israel has been very secretive about all of its military operations, and there is not a lot known publicly about the Skyhawk's use in combat in the Middle East. It is known that a few air-to-air victories have been scored by the A-4s when defending themselves against attacking aircraft. But the Skyhawk's primary role with the Heyl Ha'Avir is the same as it is with any other nation, and that of what it was designed for, delivering ordnance against ground targets. In performing this mission, the A-4 has served in front-line service with the Israeli Air Force since 1966.

The big test of the Skyhawk's abilities in combat was Vietnam where the Navy and Marines used it extensively against some of the most heavily defended targets in history. The A-4C was the earliest version used, and -Cs from VA-144 and VA-146 aboard the USS Constellation, CVA-64, and VA-55 and VA-56 from the USS Ticonderoga, CVA-14, participated in operation Pierce Arrow on August 5, 1964.

It would be difficult to say with certainty just how many bombs were dropped or rockets and missiles were fired from Skyhawks during the war. Carrying AGM-45 Shrike anti-radiation missiles, A-4s performed the dangerous air defense suppression mission. They attacked the radars that guided surface to air missiles and directed anti-aircraft artillery (AAA). Perhaps the most unusual mission was flown by LCDR Theodore R. Swartz in an A-4C from VA-76. Flying from the USS Bon Homme Richard, CVA-31, on May 1, 1967, LCDR Swartz scored the only MiG kill ever made by an American Skyhawk. While attacking the Kep airfield near Hanoi, another pilot called out a warning to Swartz that enemy MiGs were at his six-o'clock position. Executing a barrel roll, Swartz maneuvered his A-4C in behind the MiGs and fired several unguided five-inch Zuni air-to-ground rockets at one of them. Although Swartz did not see his rockets hit the enemy fighter because of the necessity to quickly maneuver to avoid other MiGs, his wingman did see rockets hit the MiG-17 and then saw the aircraft impact the ground, thereby confirming the kill.

Early in the war, several support carriers (CVS) of the Essex class provided support and anti-submarine protection to American ships. A-4s were included in the air wings aboard these ships, and flew combat air patrol (CAP) and other missions. It should be noted that the use of A-4s in the air groups aboard support carriers was not new in Vietnam. Detachments of A-4s had been assigned to these carriers for many years prior to the war. The small A-4 was ideal for this mission, taking little space on the smaller Essex class ASW carriers that also embarked twin-engined S2F Trackers and ASW helicopters.

The Marines used the two-seat TA-4F in Vietnam for the fast forward air control (FAC) and recon missions. These Skyhawks were usually assigned to Headquarters and Maintenance Squadrons (H&MS). From this use came the specialized OA-4M version that remains in use today.

Single-seat Skyhawks remaining in U.S. Navy service are now used in the adversary role to provide threat simulators to Navy pilots. This A-4F, 154217, was assigned to VF-43 in April 1983 when this photograph was taken. VF-43 is one of the Navy's adversary commands. The electronics hump, armament, and other equipment have been removed from the aircraft to make it as light and maneuverable as possible. *(Linn)*

SINGLE-SEAT SKYHAWKS

A4D-1/A-4A

This A4D-1 is being hoisted aboard a carrier while four others wait for their turn. The solid, non-ribbed rudder and lack of a refueling probe, both distinguishing features of the A4D-1, are evident in this view. (National Archives)

The A4D-1/A-4A was the first production version of the Skyhawk, and could be distinguished by two unique features. It was the only variant not to have a refueling probe, and the only one with a skinned conventional rudder. All future versions had a refueling probe on the right side of the nose and the ribbed or "tadpole" rudder. The length of the aircraft was 39.5 feet, while the span was 27.5 feet. The centerline station could carry up to 3575 pounds of stores, and each of the two wing pylons was capable of carrying 1200 pounds. The engine on production models was the Wright J65-W-4 axial flow turbojet with a maximum of 7,700 pounds of static thrust. It was 113 inches in length and thirty-one inches in diameter.

Performance of a clean aircraft was as follows:

Max speed at sea level	588 knots
Max speed at altitude	529 knots/35,000 feet
Rate of climb at sea level	11,600 f.p.m.
Combat ceiling	46,600 feet
Stall speed (power off)	83 knots

Electronics included the AN/ASQ-17 group consisting of UHF communications, IFF, Coder, and UHF Direction Finder functions. Externally, an AN/ARN-12 Marker-Beacon Receiver and an AN/ARN-14 VOR Receiver could also be carried.

Aircraft weights were as follows:

Empty	8,391 pounds
Basic	8,589 pounds
Design	12,504 pounds
Combat	12,370 pounds
Max take-off	19,910 pounds
Max landing (field)	11,556 pounds
Max landing (arrested)	11,556 pounds

VA-72 was the first unit to receive the A4D-1 which became operational on October 26, 1956. VA-34 followed, and VA-93 became the first Pacific coast squadron to fly the Skyhawk.

A total of 166 A4D-1s were built, with BuNos allocated as follows:

137812 to 137831 (R&D aircraft)
139919 to 139970
142142 to 142235

A4D-2/A-4B

These four A4D-2s illustrate the addition of the ribbed "tadpole" rudder and the in-flight refueling probe.

(via Jones)

The second production variant was the A4D-2 which was later redesignated the A-4B. It made its first flight on March 26, 1956. The two most visible changes over the A4D-1 was the addition of the in-flight refueling probe to the right side of the nose, and the single-surface rudder with external stiffening. But there were many more less noticeable improvements as well. The A4D-2 could carry the "buddy" refueling store that permitted it to act as a tanker aircraft. An improved gunsight and improved bombing system increased the accuracy with which ordnance could be delivered. The capability to carry and guide the Bullpup missile was installed. Structural strengthening increased the maneuvering limits to 7Gs. The hydraulic system was improved, and a single point pressure refueling system was added. Dimensions for the A4D-2 remained the same as it was with the A4D-1 except for the length which became 40.1 feet when measured over the refueling probe. The length of the actual airframe remained 39.4 feet. The powerplant for the A4D-2 was the J65-W-16A with a maximum thrust of 7,700 pounds. Performance figures were basically the same as with the A4D-1. Weights were as follows:

Empty	9,146 pounds
Basic	10,032 pounds
Design	12,504 pounds
Max take-off	22,500 pounds
Max landing (field)	16,000 pounds
Max landing (arrested)	13,000 pounds

Improved electronics included the AN/ASQ-17 Electronic Control Central providing the following:

Function	Equivalent to
UHF Communications	AN/ARC-27
IFF	AN/APX-6B
SIF	AN/APA-89
UHF ADF	AN/ARA-25
Dead Reckoning Computer	AN/ASN-19A
TACAN	AN/ARN-21
LABS	AFRO. 18
Store Arming	T-249
Bullpup (System)	ASM-N-7A

Externally, the AN/ARN-12 Marker-Beacon Receiver and AN/ARN-14 VOR receiver could be carried.

The first A4D-2s to enter service did so with Marine squadron VMA-211 in September 1957. The first Navy squadron, VA-12, received this version of the Skyhawk in February 1958. It was also the A4D-2 that flew the first Skyhawk missions where there was a possibility of real combat when VA-83 covered the Marine landings in Lebanon in 1958.

A total of 542 A4D-2s were built, with BuNos allocated as follows:

142082 to 142141
142416 to 142423
142674 to 142953
144868 to 145061

A4D-2N/A-4C/A-4L

A limited all-weather capability was provided in the A4D-2N, which was redesignated the A-4C. It had a longer nose section than the two previous Skyhawk versions in order to house the associated equipment. This A-4C, 149558, is being hooked up to a catapult on the USS Constellation, CVA-64. *(U.S. Navy)*

The third and most numerous variant of the Skyhawk was the A4D-2N, which added a limited all-weather and night capability. An AN/APG-53A radar, designed specifically for the A-4, and weighing only ninety pounds, was added in the nose. A TPQ-10 Blind Bombing System and an AJE-3 Low Altitude Bombing System/Altitude and Heading Reference System (LABS/AHRS) was also included, and to accommodate some of the new equipment the nose was lengthened approximately nine inches to 40 feet, 1 and 1/4 inches. The AN/ASQ-17 Electronic Control Central was retained. A new cockpit was designed with a better layout of instruments and controls, and a Douglas-built automatic flight control system was added.

The first flight of an A4D-2N was made on August 21, 1958, and power was provided by a J65-W-16A engine providing a maximum of 7,700 pounds of thrust. Weights increased slightly over the A4D-2, and can be summarized as follows:

Empty	9,827 pounds
Basic	10,467 pounds
Design	12,504 pounds
Combat	16,249 pounds
Max take-off	22,500 pounds
Max landing (field)	16,000 pounds
Max landing (arrested)	14,500 pounds

The following table provides performance data for a clean aircraft:

Take-off weight	16,228 pounds
Take-off run (S.L. calm)	2,300 feet
Take-off run (S.L. with 25 kt. wind)	1,510 feet
Take-off run (Clear 50 ft., calm)	3,650 feet
Max speed/altitude	570kts/3,000feet
Rate of climb at S.L.	7,500 f.p.m.
Service ceiling	41,950 feet
Range*	990 nautical miles
Combat rad./mission time	465n.mi./2.2hours
Average cruising speed	432 knots

* With three 300-gallon external tanks, range can be increased to 1615 nautical miles.

The A4D-2N entered service in March 1960, with VMA-225 being the first squadron to become operational with the new version. The first U.S. Navy squadron was VA-

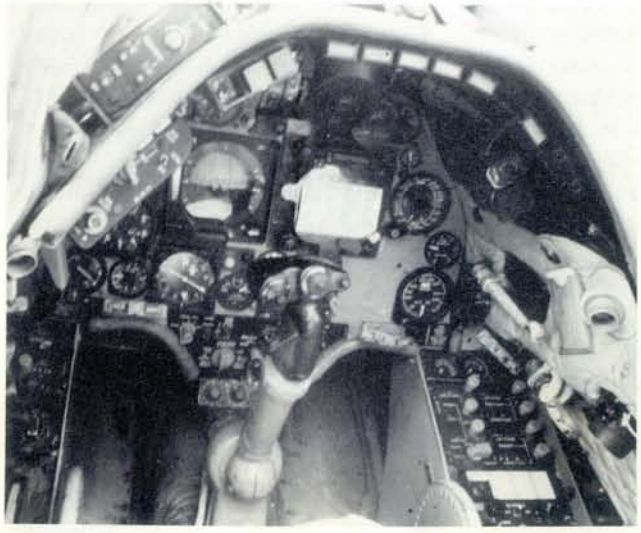
One-hundred A-4Cs were upgraded to A-4Ls. A noticeable change was the addition of the avionics hump on the fuselage. Like the A-4C, the A-4L had only three hardpoints for carrying stores, and it retained the J65 engine. (Linn)

192, which received the A4D-2N in May 1960. Eventually twenty-nine squadrons would fly this Skyhawk variant.

One hundred A-4Cs were converted to A-4L standards, which included the addition of the avionics hump on top of the fuselage. This conversion was done by the Navy rather than by Douglas or any other production facility. The first flight of an A-4L was made on August 21, 1969. Although being upgraded in the area of avionics, the A-4L retained the J65 engine and only three external hardpoints. These aircraft were used mainly by reserve and composite or utility units.

A total of 638 A4D-2Ns were built, with the following BuNos allocated:

145062 to 145146
147669 to 147849
148304 to 148317
148435 to 148612
149487 to 149646
150581 to 150600



This is the instrument panel in an A-4L.

The A-4E had two additional hardpoints under the wings, bringing the total to five. This A-4E, 149993, with numerous mission markers painted on the cockpit side just ahead of the intake, is being launched from the USS Independence, CVA-62. The aircraft is from VA-72. *(U.S. Navy)*

The A4D-5 was redesignated under the new DOD system as the A-4E, and was known under the new designation throughout almost all of its operational life. For that reason, it will be referred to by the A-4E designation in this book. This variant showed the most improvement over the previous model than any other version of the Skyhawk. It was powered by the Pratt & Whitney J52-P-6A two-spool, axial flow engine which delivered a maximum of 8,500 pounds of thrust. It was 116 inches long and 31 inches in diameter, was lighter than the Wright J65, and offered more power. Equally important, it offered a substantial improvement in fuel consumpsion over the J65, and this translated into a better range. Two additional hardpoints were added outboard under the wings which could carry stores up to 500 pounds in weight. Maximum take-off weight increased to 24,500 pounds. A summary of weights for the A-4E is as follows:

Empty	9,624 pounds
Basic	10,391 pounds
Design	12,504 pounds
Combat	16,135 pounds
Max take-off	24,500 pounds
Max landing (field)	16,000 pounds
Max landing (arrested)	14,500 pounds

To accommodate some of the added electronics, the nose was again lengthened, resulting in an airframe length of 41.25 feet excluding the refueling probe. The electronics in the A-4E consisted of the following:

Electronics Central, AN/ASQ-17B, consisting of:	
UHF Communications	AN/ARC-27
IFF	AN/APX-6
SIF	AN/APN-89
Electronic Altimeter	AN/APN-141
Navigation Set	AN/APN-153
TACAN	AN/ARN-52
Navigation Computer	AN/ASN-41
UHF Direction Finder	AN/ARA-25
Radar	AN/APG-53A
G/M Guidance	AN/ARW-73
LABS	AN/AJB-3A
Autopilot	AN/ASN-54

Many A-4Es were retrofitted with the fuselage avionics hump that was introduced with the A-4F. This A-4E is painted in one of several low-visibility tactical gray schemes that have been used on the Skyhawk, and belongs to VMA-131. Mk-82, 500-pound Snakeye bombs are being carried on all four wing stations. The photograph was taken in May 1981. (Linn)

Performance figures for a clean aircraft are as follows:

Take-off weight	15,968 pounds
Take-off run (S.L., calm)	1,950 feet
Take-off run (S.L., 25 kt. wind)	1,270 feet
Take-off run (Clear 50 ft., calm)	3,200 feet
Max speed/altitude	584 knots/SL
Rate of climb at S.L.	8,750 f.p.m.
Service ceiling	42,700 feet
Range*	1,130 nautical miles
Average cruising speed	435 knots
Combat rad./mission time	530n.mi./2.5 hours

* With three 300-gallon external fuel tanks, the range can be increased to 1856 nautical miles.

Two prototypes for the A-4E were converted from two A-4C airframes, and the first flight took place on July 12, 1961. It entered service with VA-23 in November 1962. A total of twenty-two squadrons operated this version of the Skyhawk. A total of 500 were ordered and 499 were built. The 500th was used as the prototype for the A-4F. BuNos for the A-4E were allocated as follows:

148613 to 148614 (prototypes)
149647 to 149666
149959 to 150138

This A-4E is assigned to the Navy's Fighter Weapons School at NAS Miramar, California. It is in a camouflage of browns and tan, and was the plane flown by "Jester" in the movie TOP GUN. It is shown being washed down in front of the hangar.

A-4F

One of the last A-4Fs built, 155057 shows some refinements including the addition of a fairing that houses the aft antennas for the ALR-45 Homing and Warning System on top of the tail. The avionics hump on the fuselage was a standard feature on the A-4F as built, and was first introduced on this version. It was retrofitted to many A-4Es and the 100 A-4L aircraft. This aircraft was photographed in October 1982, and belongs to VMA-133. (Linn)

Had it not been for the war in Vietnam, the A-4E would have been the last single-seat version of the Skyhawk produced for the Navy. But, after the war began, the A-4F version was designed and built, specifically for use in the war. It was only assigned to the Pacific coast squadrons, having never been deployed with the Atlantic fleet. It incorporated several new features, most noticeable being the avionics hump on the top of the fuselage. As stated earlier, this hump was also retrofitted to many A-4Es and to all 100 of the A-4Ls that were converted from A-4Cs. Other new features of the A-4F included a zero-zero ejection seat, nose wheel steering, wing spoilers, and armor plating around the cockpit. Deliveries began in June 1967. The A-4F was powered by the J52-P-8A engine that produced 9,300 pounds of thrust. Later, this was replaced with the J52-P-401.

The A-4F was the last version to serve in the attack role with the Navy, and the last has been retired from the Navy's operational attack squadrons. However, many A-4Fs still serve with the Navy as adversary aircraft. Stripped of armament and other gear to lighten the airframe as much as possible, these aircraft provide a for-

The A-4F was also the mount of the Blue Angels until it was replaced by the F/A-18 Hornet for the 1987 season. Called Skyhawk IIs, these A-4Fs did not have the avionics hump.

This "Super Fox" belongs to VFC-13 at NAS Miramar. It has been stripped of a lot of equipment, to include armament and the avionics hump, and is used as an adversary aircraft. Note the false canopy painted on the nose wheel door. The aircraft is in a very subdued low-visibility paint scheme.

A-4F, 154190, belongs to VA-127, and was photographed at the thirtieth anniversary for the A-4. The event took place at the London International Air Show which was held at Ontario, Canada, in June 1984. (Linn)

midable adversary for such high-performance aircraft as the F-14 and F-18. The great maneuverability and high thrust-to-weight ratio of the "Super Fox" makes it a great dogfighter.

It should be mentioned that the A-4F was also the version of the Skyhawk that was flown by the Blue Angels. Without the avionics hump and other equipment, the A-4F proved an excellent demonstration aircraft because of its maneuverability and clean lines. It was finally replaced with the F/A-18 Hornet for the 1987 season.

Not counting the prototype which came from the A-4E orders, there were 146 A-4Fs delivered to the Navy. BuNos were as follows:

154172 to 154217
154990 to 155069

This A-4F "Super Fox," 155022, is from VFC-12, and wears an unusual overall dark gray paint scheme. (Linn)

A-4M

The A-4M was the last version of the Skyhawk to be built new. It was designed specifically for the U.S. Marine Corps, and was not used by Navy attack squadrons. This A-4M, 160024, belongs to VMA-131, and was photographed in November 1988 during a training flight out of NAS Willow Grove. (Linn)

In the late 1960s and early 1970s, the Navy began retiring the last of its Essex class carriers. Most of the CVS support carriers used for anti-submarine warfare were gone by mid-1970, with the USS Wasp, CVS-18, being the last to go in July 1972. Those Essex class carriers remaining as CVAs followed, and the last, the USS Hancock, CVA-19, was decommissioned in January 1976. After that date, only the USS Lexington, AVT-16, remained as the Navy's training carrier. These carriers were not replaced on a one for one basis by new carriers, so there was also a considerable number of air wings and squadrons that were also disestablished. Many of these squadrons were equipped with the A-4 Skyhawk. Those squadrons that remained on the large deck carriers were quickly transitioning to the A-7 Corsair II if they had not already done so. The result was that the A-4 was phased out of the Navy's attack squadrons quickly.

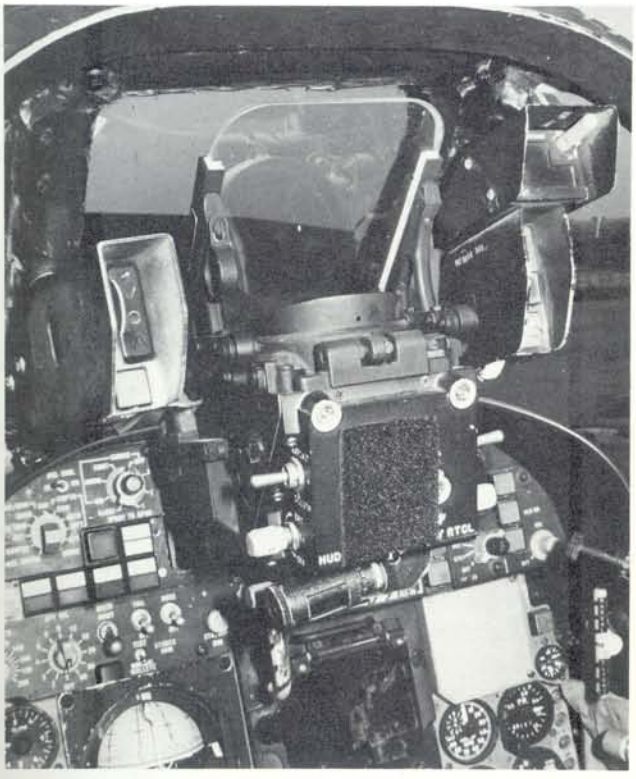
By 1978, it was clear that the A-4s days were numbered as an attack aircraft in the Navy. But the Marines were not so sure they wanted to give up the Skyhawk. They knew that they could obtain and operate more Skyhawks than A-7s with the same amount of dollars. With a few modifications, the A-4 could easily meet all of their requirements for many years to come. The result was that a new single-seat version of the Skyhawk began down the assembly line, and it was designed specifically for the Marines. Appropriately enough, it was designated A-4M.

Even as originally built, the A-4M was noticeably changed from earlier versions. It had a larger vertical stabilizer with a squared-off tip. The canopy was larger and had more of a bubble shape. A hole in the right side of the fuselage was the exhaust for the engine's self-starter, which was needed by the Marines operating from unimproved airfields. The wing was strengthened, and each hardpoint could carry a heavier load than before. The maximum load of stores increased to 9,155 pounds, and two tons could be hauled over a combat radius of 340 miles. Ammunition for each 20mm cannon doubled to 200 rounds. The engine was the J52-P-408A, the most powerful ever placed in any A-4, and it provided up to 11,200 pounds of thrust. A top speed of 670 miles per hour

A-4M, 158164, is shown here in the markings of VMAT-102 at MCAS Yuma. The photograph was taken in June 1986. (Linn)

Unlike other versions of the Skyhawk, the A-4M is equipped with a self-starter, the exhaust for which is located on the right intake. The hole for this exhaust is one of the distinguishing features of this version of the Skyhawk.

This A-4M, 159790, is painted in the low-visibility gray scheme, and was photographed on September 22, 1979, at Holloman AFB, New Mexico. It belongs to VMA-214, which is the famous "Blacksheep" squadron.

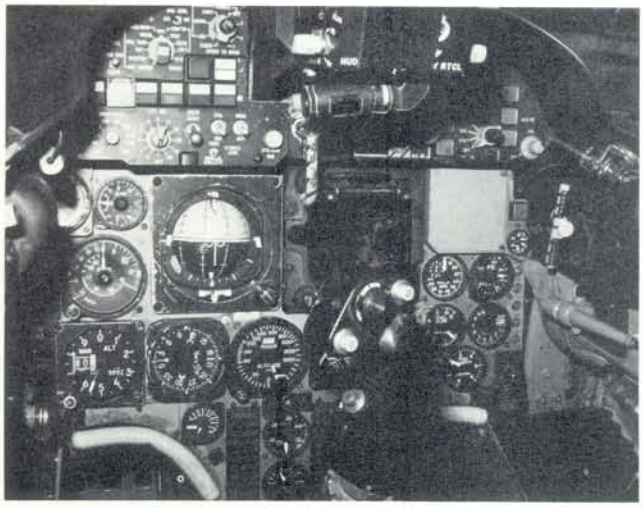


This is the gunsight in an A-4M. *(Linn)*

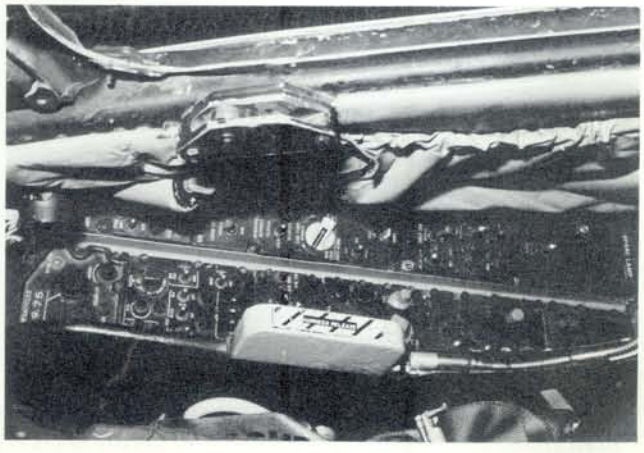
This is the left side console in an A-4M. *(Linn)*

could be reached at sea level, and the initial rate of climb was 8,440 feet per minute. A parabrake for short field landings was contained in a housing below the exhaust. Empty weight jumped to 12,208 pounds, with 24,500 pounds being the maximum take-off weight. Bumps, blisters, fairings, and bulges appeared around the nose and tail sections to accommodate the electronics, and more were added as time went on. Most noticeable were the fairing that was added to the top of the vertical tail and the blisters on either side of the nose. Included in the electronics on many, but not all, A-4Ms was a Hughes Angle Rate Bombing System (ARBS), a laser/TV electro-optical tracker similar to that in the AV-8B. A head-up display HUD was installed in the cockpit.

The first flight of an A-4M occurred on April 10, 1970, and the first deliveries were to VMA-324 in April 1971. Today, the A-4M is the only version of the Skyhawk remaining in service with attack squadrons of any American forces. All are Marine units since the A-4M never served in any Navy attack squadrons. It did form the basis and standard for two export versions, those being the A-4N supplied to Israel and the A-4KU sold to Kuwait.



Details of the instrument panel in an A-4M are revealed in this photograph. *(Linn)*



Details of the right console are revealed in this view. *(Linn)*

TWO-SEAT SKYHAWKS

Several two-seat versions of the Skyhawk were built for training, observation, electronic warfare, and combat duties. The most numerous two-seat Skyhawk was the TA-4J, which is the Navy's principle advanced jet trainer. It is also used in the adversary role, but is not as capable as the more powerful single-seat versions. This TA-4J, 154338, is assigned to VF-126, which is based at NAS Miramar, California, and has an adversary mission. It was photographed on April 6, 1980, at Offutt AFB, Nebraska. (Cockle)

TA-4F

The initial two-seat Skyhawk took to the air for the first time on June 30, 1965. At that time it was designated TA-4E since it was based on the A-4E airframe. A stretch of twenty-eight inches was added to the forward fuselage section, and a second cockpit was added at the expense of fuel capacity in the fuselage tank. Only 100 gallons could be carried in the smaller fuselage tank. Unlike the A-4E, the TA-4E had wing spoilers above the flaps, which was a feature that was begun on the A-4F version with the single-seaters. Perhaps partly for this reason, the designation was soon changed to TA-4F and the first deliveries to VA-125 began in May 1966.

Like the single-seaters, the TA-4F had full combat capability with five pylons under the wings and fuselage centerline. Power was provided by a J52-P-8A engine which could produce a maximum 9,300 pounds of thrust. As produced, weights for the TA-4F were as follows:

Empty	10,696 pounds
Basic	11,009 pounds
Design	12,504 pounds

The TA-4F was the first two-seat version of the Skyhawk put into production, and it served as a trainer as well as performing other duties. The Navy TA-4F on the left is in an overall white paint scheme, and has VA-164's markings. The Marine aircraft in the photograph at right is in the standard light gull gray over white scheme, and is painted in the markings of H&MS-32. (Both Handelman)

VMT-103 operated TA-4F, 153663. It is shown here carrying three external fuel tanks. Note the empty outboard pylon under the wing which provides evidence that the TA-4F retained a five-pylon capability.
(MAP via Flightleader)

Combat	17,445 pounds
Max take-off	24,500 pounds
Max landing (field)	16,000 pounds
Max landing (arrested)	14,500 pounds

Electronics included:

UHF Communications	AN/ARC-51A
IFF	AN/APX-64
Standby Communications	AN/ARR-69
Direction Finder	AN/ARC-5C
TACAN	AN/ARN-52
LABS (Gyro and loft mode)	AN/AJB-3A
Autopilot	Douglas
Store Arming	AN/AWW-1
Radar	AN/APG-53A
Radar Altimeter	AN/APC-141
Doppler	AN/APN-153
Auto. Dead Recon	AN/ASN-41

Interestingly enough, the Navy's Standard Aircraft Characteristics on the TA-4F states that 175 could be spotted on the hangar and flight decks of a single Forrestal class carrier with the planes on the flight deck being positioned in a landing spot. This means that there would still be enough room to land aircraft. Since only 239 TA-4Fs were built, two Forrestal class carriers could easily operate all of them at one time! BuNos allocated for the TA-4F version were as follows:

152102 to 152103
152846 to 152878
153459 to 153531
153660 to 153690
154287 to 154343
154614 to 154675

Performance figures for a clean airplane are given as:

Take-off weight	16,324 pounds

Four TA-4Fs were converted to EA-4Fs and were operated as ECM adversary aircraft by VAQ-33. This is one of the EA-4Fs painted in early markings for these four aircraft. *(MAP via Flightleader)*

Take-off run at S.L. (calm)	2,210 feet
Take-off run at S.L. (25 kt, wind)	1,530 feet
Take-off run to clear 50 ft. (calm)	3,270 ft.
Maximum speed/altitude	591 kts./3,000 feet
Rate of climb at S.L.	10,500 f.p.m.
Ceiling	42,200 feet
Range*	830 nautical miles
Combat rad./mission time	375n.mi./1.9 hours
Average cruising speed	417 knots

* Range can be increased to 1,330 nautical miles with two external 300-gallon tanks, and to 1,555 nautical miles with three 300-gallon tanks.

Variations on a theme

Two specialized versions were converted from TA-4F airframes, the first being the EA-4F that was flown by ECM "aggressor" squadron VAQ-33. Only four aircraft were modified to the EA-4F standard, and are flown to provide an ECM environment for training purposes. They can dispense chaff and carry electronic jamming pods. However, the more important mission of these aircraft is to simulate enemy missiles so that U.S. forces can learn how to counter and destroy them.

A more numerous special-purpose version is the OA-4M forward air control aircraft developed for the Marines. First flown on May 23, 1978, twenty-three TA-4Fs have been converted to this standard by the Naval Air Rework Facility (NARF) at Pensacola, Florida. This version can be identified by its unusual two-seat configuration and electronics hump. The only other Skyhawk so configured is the TA-4KU flown by Kuwait. These aircraft are assigned to Headquarters and Maintenance Squadrons (H&MS), and have the necessary equipment to provide tactical control and communications for Marine forces on and above the battlefield. They can adjust air strikes, artillery, and naval gunfire on targets to the best advantage of the ground troops. Electronics carried by the OA-4M to accomplish its mission are as follows:

UHF Communications	AN/ARC-159

Another specialized two-seat version of the Skyhawk is the OA-4M, which is designed to perform the fast forward air control mission for the Marines. Twenty-three OA-4Ms were converted from TA-4F aircraft. (Linn)

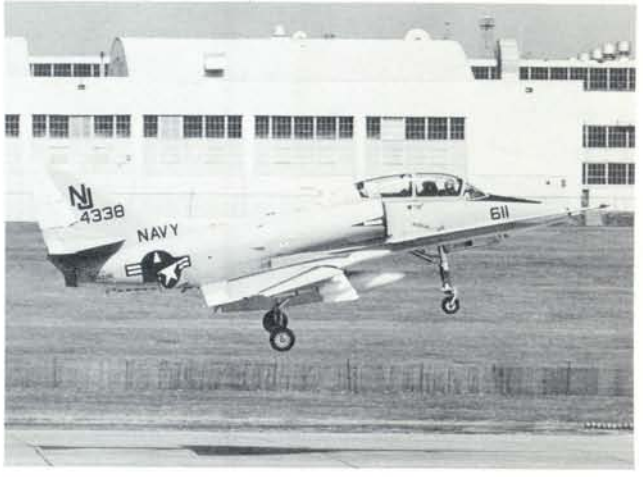
TACAN	AN/ARN-118
ECM	AN/ALQ-126
Secure Voice	KY-28
Radar Warning System	AN/ARL-45/50

The OA-4M also carries a VHF radio for air-ground communications and spotting rockets to mark positions on the ground.

TA-4J

The most numerous two-seat version of the Skyhawk was the TA-4J, which was intended only as a trainer. It was powered by the J52-P-6 engine rather than the more powerful J52-P-8A used in the TA-4F. It also lacked the navigation/attack systems found in the combat-capable TA-4F. Although the TA-4J was designed to be armed with two 20mm cannon, most are seen with only one or no cannon installed. The first flight of a TA-4J was made on May 1969, and VT-21 began receiving this version of the Skyhawk a month later. It remains today as the Navy's principle advanced jet trainer with more of them now in service than any other type. Some were converted from TA-4Fs, while many others were built new. BuNos allocated to the TA-4J are as follows:

155070 to 155119
156891 to 156950
158073 to 158147
158438 to 158527
158721 to 158723
159099 to 159104
159546 to 159556
159795 to 159798



The TA-4J was the most widely produced two-seat version of the Skyhawk. Some were converted from TA-4Fs, but most were built from the start as TA-4Js. (Cockle)

TA-4Js are also assigned to squadrons that operate single-seat Skyhawks in the adversary role. This aircraft belongs to VFC-13 at NAS Miramar.

The overall white paint scheme with bright red-orange panels on the nose, wings, and tail is the standard scheme used on TA-4Js of the Navy's training squadrons. This TA-4J, 154305, from VT-86 is representative of that paint scheme. (Cockle)

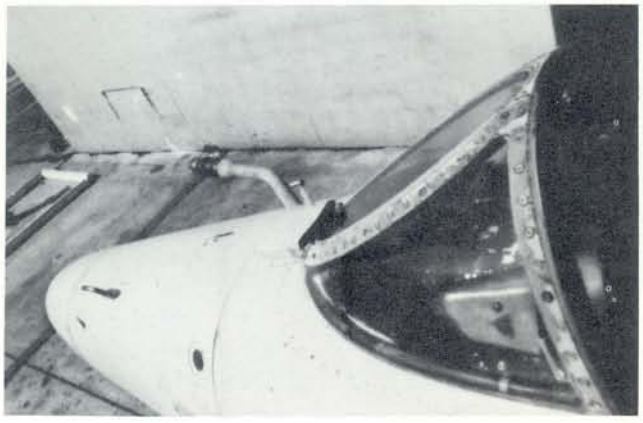
This TA-4J from VT-7 has just made a successful landing aboard the USS Lexington, AVT-16.

One of several adversary schemes used by VF-126 at NAS Miramar is applied to this TA-4J. The colors are brown and tan.

Both of these TA-4Js are assigned to VT-86 at NAS Pensacola. The one in the photograph on the left is painted dark gray, and the one at right is overall light gray. Spot painting makes the gray look mottled.

SKYHAWK DETAILS

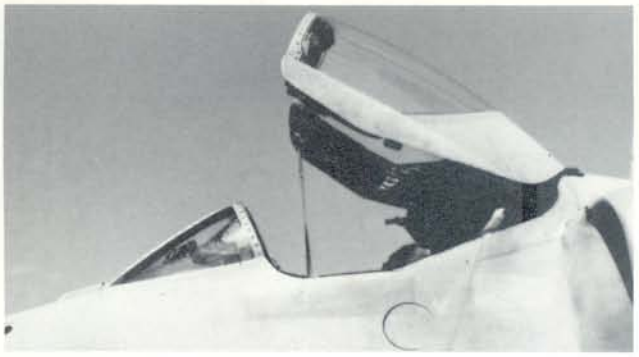
The standard canopy and windscreen used on all single-seat versions of the Skyhawk, except the A-4M, is shown here from the right. The windshield wiper was common on the A-4C and A-4L versions.



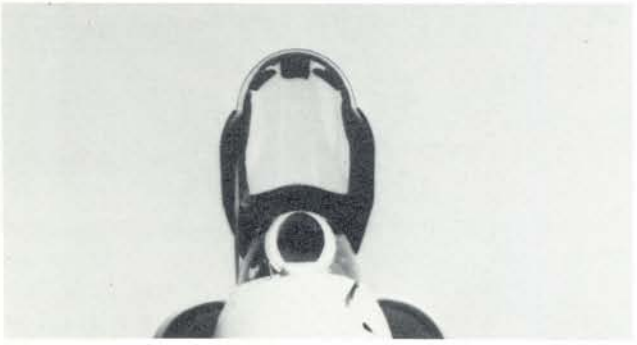
The windscreen is revealed in this view. A duct to blow air over the front of the windscreen for rain removal is visible just in front of the glass. This method of rain removal replaced the earlier windshield wiper seen above.

The windscreen on the A-4M had straight, parallel framing members that were like the ones used on the two-seat versions.

The A-4M's canopy is shown in the open position in this view.



Here is the standard single-seat canopy in the open position as viewed from the left. A detachable strap prevents the canopy from opening hard against its hinges or putting pressure on them while taxiing.



A front view shows the curved windscreen framing that was standard on all single-seat versions except for the A-4M.

The A-4M had a larger canopy with rails of a different shape. Note the shape of the canopy rails in this photo with the canopies in the top two photographs. The canopy glass has more of a bubble to it.

With the canopy removed from an A-4F, hinge details are revealed. This area is painted flat black.

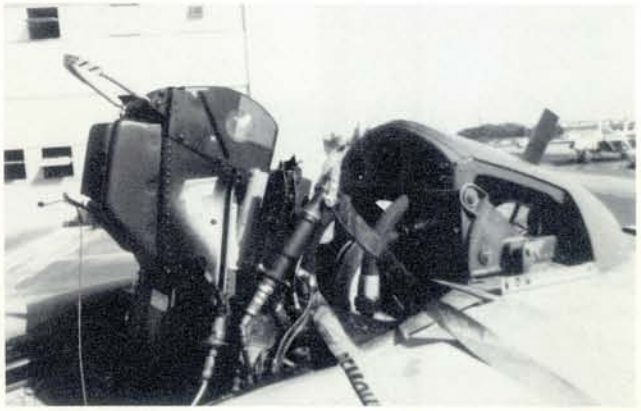
The canopy used on most two-seat versions is illustrated on this page. This view, taken from above, shows the canopy in the closed position. The framework is clearly visible.

Details of the windscreen and the canopy in the open position are shown here.

The center support point for the large canopy used on the two-seat Skyhawks is shown here. A cleaner has been applied to the glass portion of the canopy.

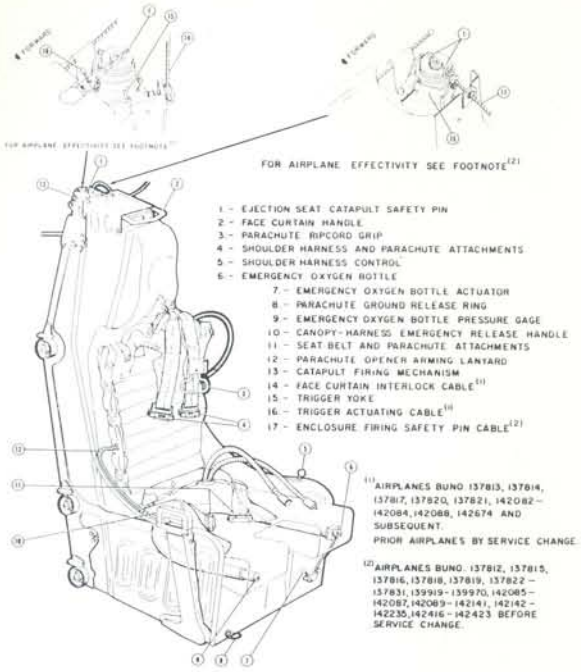
This front view shows the open canopy and the two straight, parallel framing members of the windscreen.

This is the open canopy as pictured from the left.

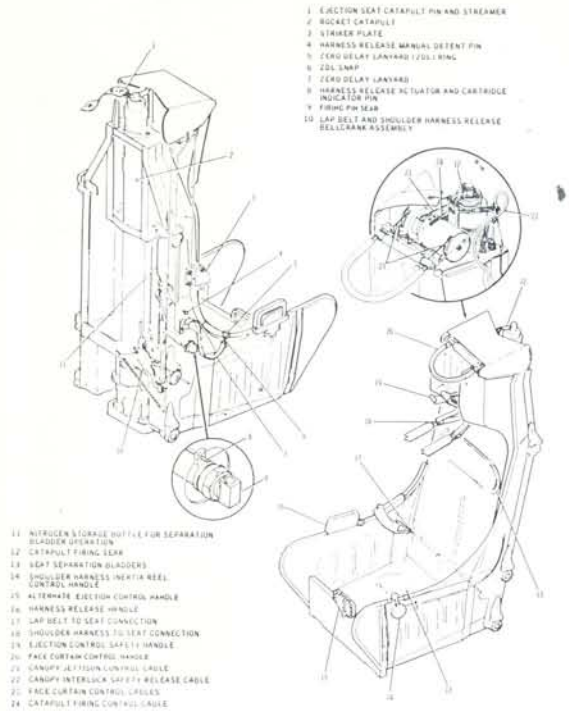


With the canopy removed, the hinge point on the left side is revealed.

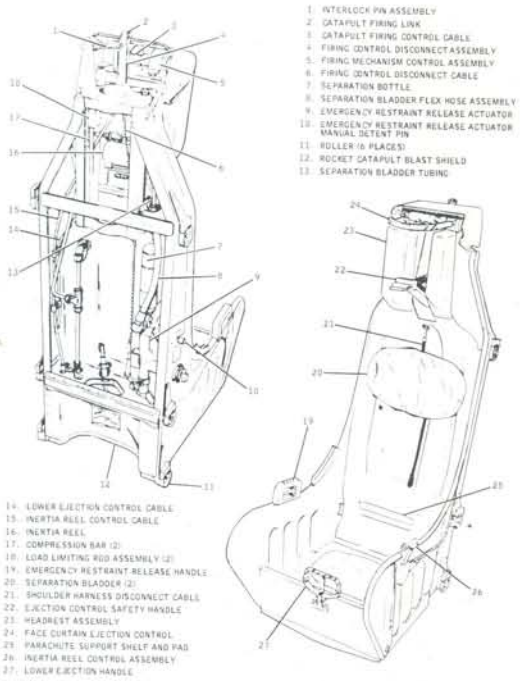
EJECTION SEATS


FOR AIRPLANE EFFECTIVITY SEE FOOTNOTE(2)
1 - EJECTION SEAT CATAPULT SAFETY PIN
2 - FACE CURTAIN HANDLE
3 - PARACHUTE RIPCORD GRIP
4 - SHOULDER HARNESS AND PARACHUTE ATTACHMENTS
5 - SHOULDER HARNESS CONTROL
6 - EMERGENCY OXYGEN BOTTLE
7 - EMERGENCY OXYGEN BOTTLE ACTUATOR
8 - PARACHUTE GROUND RELEASE RING
9 - EMERGENCY OXYGEN BOTTLE PRESSURE GAGE
10 - CANOPY-HARNESS EMERGENCY RELEASE HANDLE
11 - SEAT BELT AND PARACHUTE ATTACHMENTS
12 - PARACHUTE OPENER ARMING LANYARD
13 - CATAPULT FIRING MECHANISM
14 - FACE CURTAIN INTERLOCK CABLE(1)
15 - TRIGGER YOKE
16 - TRIGGER ACTUATING CABLE(1)
17 - ENCLOSURE FIRING SAFETY PIN CABLE(2)
(1) AIRPLANES BUNO 137813, 137814, 137817, 137820, 137821, 142082 - 142084, 142088, 142674 AND SUBSEQUENT. PRIOR AIRPLANES BY SERVICE CHANGE.
(2) AIRPLANES BUNO. 137812, 137815, 137816, 137818, 137819, 137822 - 137831, 139919 - 139970, 142085 - 142087, 142089 - 142141, 142142 - 142235, 142416 - 142423 BEFORE SERVICE CHANGE.

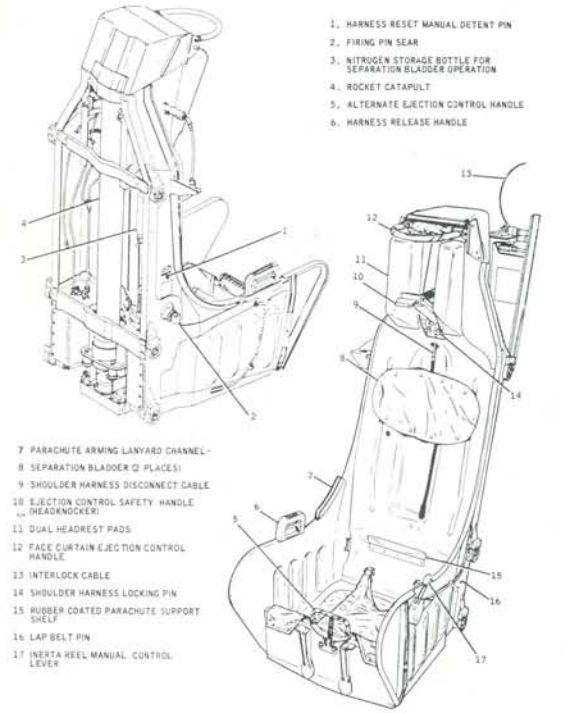
The first seat installed in the Skyhawk was the NAMC TYPE II ballistic seat. The overall seat color was dark gull gray with a light gray, black, or red headrest.
(U.S. Navy via Wilburn)


1 EJECTION SEAT CATAPULT PIN AND STREAMER
2 ROCKET CATAPULT
3 STRIKER PLATE
4 HARNESS RELEASE MANUAL DETENT PIN
5 ZERO DELAY LANYARD (ZDL) RING
6 ZDL SNAP
7 ZERO DELAY LANYARD
8 HARNESS RELEASE ACTUATOR AND CARTRIDGE INDICATOR PIN
9 FIRING PIN SEAR
10 LAP BELT AND SHOULDER HARNESS RELEASE BELLCRANK ASSEMBLY
11 NITROGEN STORAGE BOTTLE FOR SEPARATION BLADDER OPERATION
12 CATAPULT FIRING SEAR
13 SEAT SEPARATION BLADDERS
14 SHOULDER HARNESS INERTIA REEL CONTROL HANDLE
15 ALTERNATE EJECTION CONTROL HANDLE
16 HARNESS RELEASE HANDLE
17 LAP BELT TO SEAT CONNECTION
18 SHOULDER HARNESS TO SEAT CONNECTION
19 EJECTION CONTROL SAFETY HANDLE
20 FACE CURTAIN CONTROL HANDLE
21 CANOPY JETTISON CONTROL CABLE
22 CANOPY INTERLOCK SAFETY RELEASE CABLE
23 FACE CURTAIN CONTROL CABLES
24 CATAPULT FIRING CONTROL CABLE

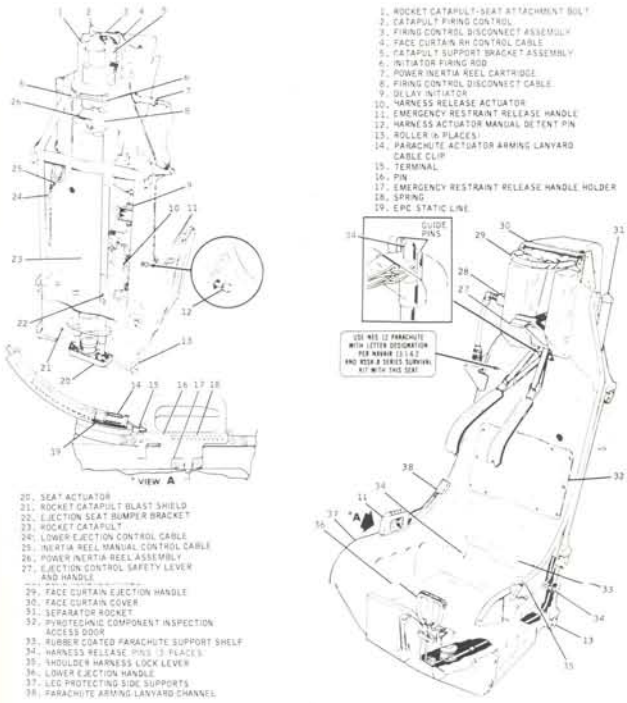
The RAPEC (Rocket Assisted Personnel Ejection Catapult) seat replaced the NAMC seat in early 1961. It was retrofitted to A-4A and -B aircraft, and was installed during production in the A-4C. *(U.S. Navy via Wilburn)*


1 INTERLOCK PIN ASSEMBLY
2 CATAPULT FIRING LINK
3 CATAPULT FIRING CONTROL CABLE
4 FIRING CONTROL DISCONNECT ASSEMBLY
5 FIRING MECHANISM CONTROL ASSEMBLY
6 FIRING CONTROL DISCONNECT CABLE
7 SEPARATION BOTTLE
8 SEPARATION BLADDER FLEX HOSE ASSEMBLY
9 EMERGENCY RESTRAINT RELEASE ACTUATOR
10 EMERGENCY RESTRAINT RELEASE ACTUATOR MANUAL DETENT PIN
11 ROLLER (6 PLACES)
12 ROCKET CATAPULT BLAST SHIELD
13 SEPARATION BLADDER TUBING
14 LOWER EJECTION CONTROL CABLE
15 INERTIA REEL CONTROL CABLE
16 INERTIA REEL
17 COMPRESSION BAR (2)
18 LOAD LIMITING ROD ASSEMBLY (2)
19 EMERGENCY RESTRAINT RELEASE HANDLE
20 SEPARATION BLADDER (2)
21 SHOULDER HARNESS DISCONNECT CABLE
22 EJECTION CONTROL SAFETY HANDLE
23 HEADREST ASSEMBLY
24 FACE CURTAIN EJECTION CONTROL
25 PARACHUTE SUPPORT SHELF AND PAD
26 INERTIA REEL CONTROL ASSEMBLY
27 LOWER EJECTION HANDLE

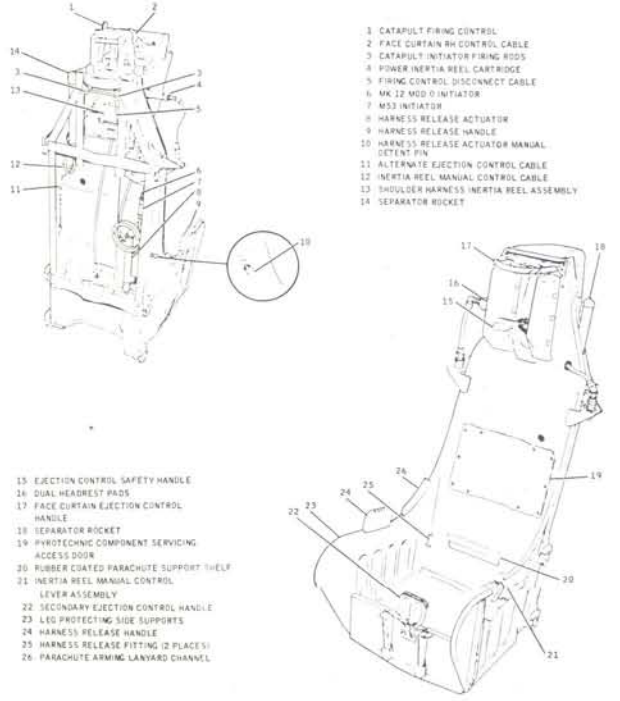
The RAPEC seat was later modified to a Zero, 90 configuration and renamed the ESCAPAC 1. It was used in the A-4A, -B, -C, and -E. The addition of a snubber dart kit as part of a performance improvement kit to yield a ZERO, ZERO seat changed the designation to ESCAPAC 1A-1. It was fitted in the A-4B, -C, -E, and -L.
(U.S. Navy via Wilburn)


1 HARNESS RESET MANUAL DETENT PIN
2 FIRING PIN SEAR
3 NITROGEN STORAGE BOTTLE FOR SEPARATION BLADDER OPERATION
4 ROCKET CATAPULT
5 ALTERNATE EJECTION CONTROL HANDLE
6 HARNESS RELEASE HANDLE
7 PARACHUTE ARMING LANYARD CHANNEL
8 SEPARATION BLADDER (2 PLACES)
9 SHOULDER HARNESS DISCONNECT CABLE
10 EJECTION CONTROL SAFETY HANDLE (HEADKNOCKER)
11 DUAL HEADREST PADS
12 FACE CURTAIN EJECTION CONTROL HANDLE
13 INTERLOCK CABLE
14 SHOULDER HARNESS LOCKING PIN
15 RUBBER COATED PARACHUTE SUPPORT SHELF
16 LAP BELT PIN
17 INERTA REEL MANUAL CONTROL LEVER

In 1964, the ESCAPAC 1C-3 seat was produced for the TA-4F, and in 1965, it was installed in the A-4F. It lacked the harness release actuator piping found on the 1A-1 seat. The 1C-3 seat was retrofitted or initially installed in the A-4G, -H, -K, -M, Super Fox, and in the two-seat versions TA-4F, -G, -H, -K, -F, and -J.
(U.S. Navy via Wilburn)


1. ROCKET CATAPULT-SEAT ATTACHMENT BOLT
2. CATAPULT FIRING CONTROL
3. FIRING CONTROL DISCONNECT ASSEMBLY
4. FACE CURTAIN RH CONTROL CABLE
5. CATAPULT SUPPORT BRACKET ASSEMBLY
6. INITIATOR FIRING ROD
7. POWER INERTIA REEL CARTRIDGE
8. FIRING CONTROL DISCONNECT CABLE
9. DELAY INITIATOR
10. HARNESS RELEASE ACTUATOR
11. EMERGENCY RESTRAINT RELEASE HANDLE
12. HARNESS ACTUATOR MANUAL DETENT PIN
13. ROLLER (4 PLACES)
14. PARACHUTE ACTUATOR ARMING LANYARD CABLE CLIP
15. TERMINAL
16. PIN
17. EMERGENCY RESTRAINT RELEASE HANDLE HOLDER
18. SPRING
19. EPC STATIC LINE
GUIDE PINS
USE MXS 12 PARACHUTE WITH LETTER DESIGNATION PER NAVAIR 13142 AND MXS4 SERIES SURVIVAL KIT WITH THIS SEAT
VIEW A
20. SEAT ACTUATOR
21. ROCKET CATAPULT BLAST SHIELD
22. EJECTION SEAT BUMPER BRACKET
23. ROCKET CATAPULT
24. LOWER EJECTION CONTROL CABLE
25. INERTIA REEL MANUAL CONTROL CABLE
26. POWER INERTIA REEL ASSEMBLY
27. EJECTION CONTROL SAFETY LEVER AND HANDLE
29. FACE CURTAIN EJECTION HANDLE
30. FACE CURTAIN COVER
31. SEPARATOR ROCKET
32. PYROTECHNIC COMPONENT INSPECTION ACCESS DOOR
33. RUBBER COATED PARACHUTE SUPPORT SHELF
34. HARNESS RELEASE PINS (3 PLACES)
35. SHOULDER HARNESS LOCK LEVER
36. LOWER EJECTION HANDLE
37. LEG PROTECTING SIDE SUPPORTS
38. PARACHUTE ARMING LANYARD CHANNEL

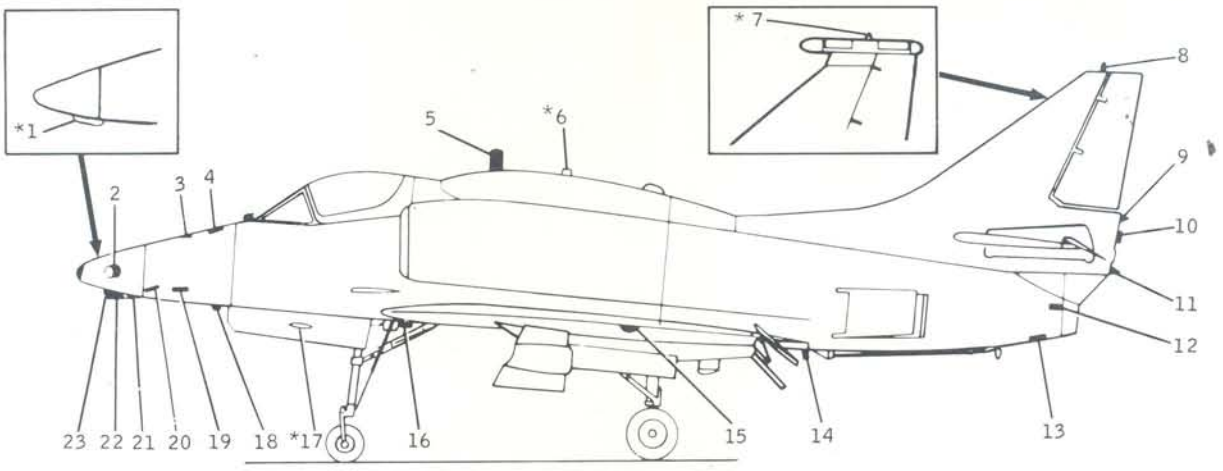
In 1971, a retrofit kit, AFC 489, was installed adding the harness release actuator piping and separator rocket as well as a few other minor improvements to make the ESCAPAC 1F-3 seat. Newly-built 1F-3 seats, distinguished by an access door on the seat back, were also produced for new aircraft built from 1971 on. It was also retrofitted to all aircraft then using the 1C-3 seat. The A-4N had the 1F-3 installed as new equipment. Separation bladders were deleted on the 1F-3 seat with the incorporation of the separation rocket, known by the pilots as the "ear burner." (U.S. Navy via Wilburn)


1. CATAPULT FIRING CONTROL
2. FACE CURTAIN RH CONTROL CABLE
3. CATAPULT INITIATOR FIRING RODS
4. POWER INERTIA REEL CARTRIDGE
5. FIRING CONTROL DISCONNECT CABLE
6. MK 12 MOD 0 INITIATOR
7. M53 INITIATOR
8. HARNESS RELEASE ACTUATOR
9. HARNESS RELEASE HANDLE
10. HARNESS RELEASE ACTUATOR MANUAL DETENT PIN
11. ALTERNATE EJECTION CONTROL CABLE
12. INERTIA REEL MANUAL CONTROL CABLE
13. SHOULDER HARNESS INERTIA REEL ASSEMBLY
14. SEPARATOR ROCKET
15. EJECTION CONTROL SAFETY HANDLE
16. DUAL HEADREST PADS
17. FACE CURTAIN EJECTION CONTROL HANDLE
18. SEPARATOR ROCKET
19. PYROTECHNIC COMPONENT SERVICING ACCESS DOOR
20. RUBBER COATED PARACHUTE SUPPORT SHELF
21. INERTIA REEL MANUAL CONTROL LEVER ASSEMBLY
22. SECONDARY EJECTION CONTROL HANDLE
23. LEG PROTECTING SIDE SUPPORTS
24. HARNESS RELEASE HANDLE
25. HARNESS RELEASE FITTING (2 PLACES)
26. PARACHUTE ARMING LANYARD CHANNEL

In 1973, Skyhawk seats were again modified by ACC 256 to yield the 1G-3 seat. Other 1G-3 seats were produced as new items. It was similar in appearance to the 1F-3, and like the 1F-3 seat, the newly-built 1G-3 seats had an access door on the back. It was fitted to the Israeli A-4N, and became the standard equipment on the A-4M, -KU, and -F (Blue Angels) in FY 1974. The two-seat TA-4J, -KU, -J, and -F (Blue Angels) received this seat at the same time. (U.S. Navy)

These two views show one of the seats removed from a TA-4J. The seat is painted flat black.

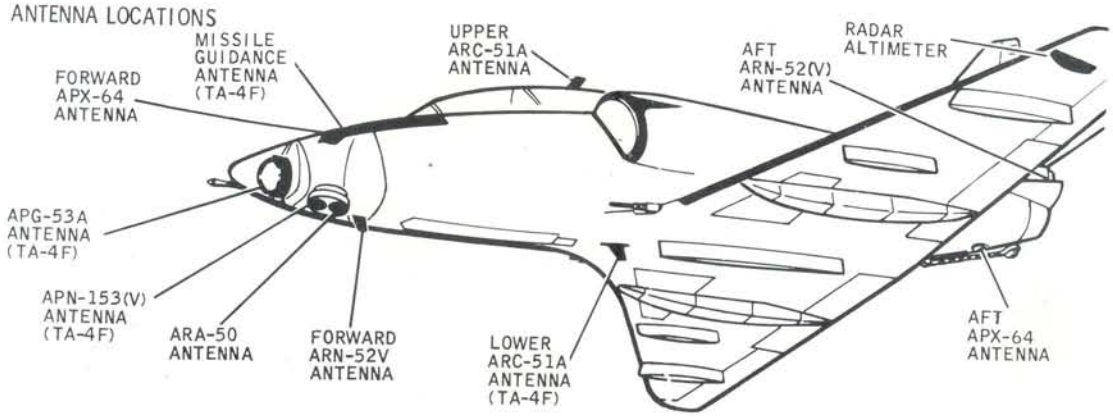
ANTENNA LOCATIONS



*1. ALR-45(V) ANTENNA
2. APG-53A/B RADAR ANTENNA
3. APX-72 IFF FORWARD ANTENNA
4. MISSILE GUIDANCE ANTENNA
5. ARC-51A UHF RADIO ANTENNA
*6. ALR-50(V) L-BAND ANTENNA
*7. IMPROVED DECM ANTENNA (2)
8. APN-154(V) RADAR BEACON ANTENNA
9. ALQ-51A/100 ECM RECEIVER AFT ANTENNA
10. ARN-52(V)/ARN-84 TACAN AFT ANTENNA
11. ALQ-51A/100 ECM PULSE TRANSMITTER AFT ANTENNA
12. APR-25(V) ECM RECEIVER AFT ANTENNA (2)
13. APX-72 IFF AFT ANTENNA
14. ARW-67 ANTENNA
15. RADAR ALTIMETER (UNDER LEFT WING OUTBOARD)
16. ALQ-51A/100 ECM PULSE TRANSMITTER FORWARD ANTENNA
*17. ALR-50(V) L-BAND ANTENNA
18. ARN-52(V)/ARN-84 TACAN FORWARD ANTENNA
19. ARA-50 UHF-ADF ANTENNA
20. APN-153(V) DOPPLER ANTENNA
21. APR-25(V) ECM RECEIVER FORWARD ANTENNA (2)
22. ALQ-51A/100 ECM RECEIVER FORWARD ANTENNA
23. ARA-63 ILS ANTENNA

*A-4F aircraft reworked per A-4 AFC 550.

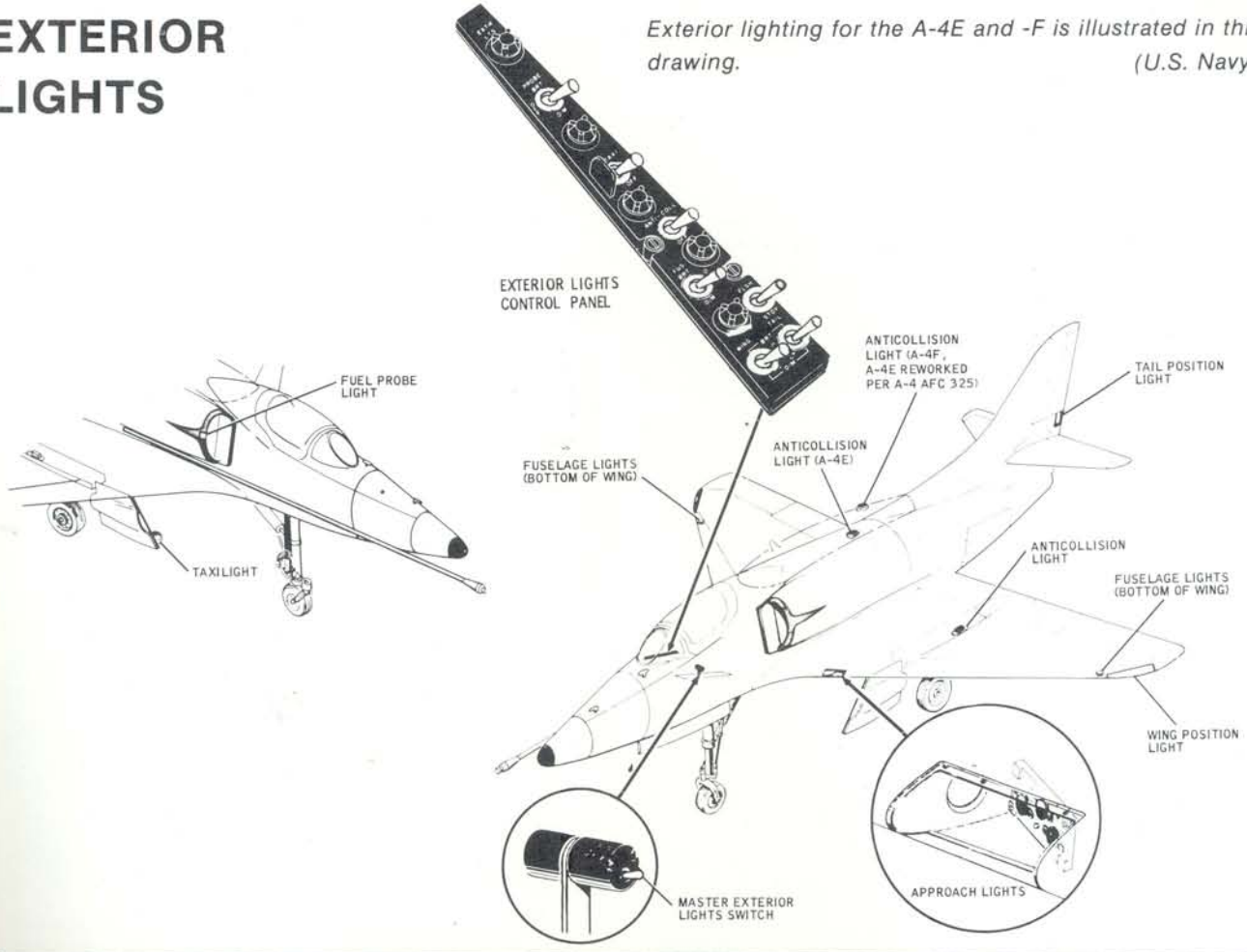
Antenna locations for the A-4E and -F are indicated in this drawing. *(U.S. Navy)*



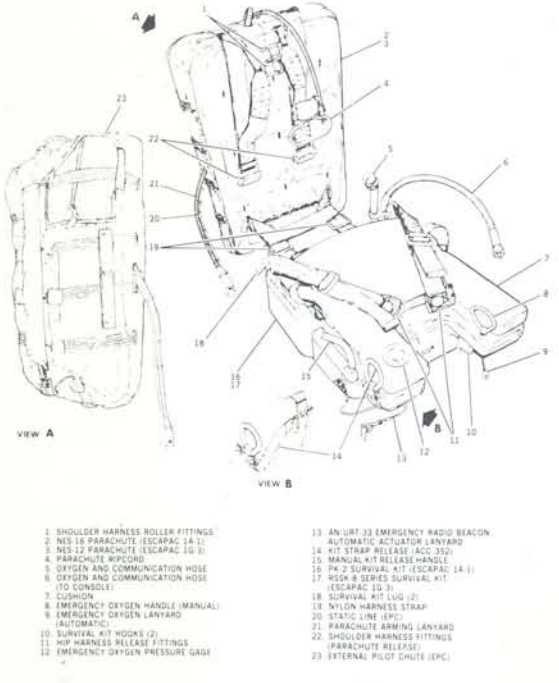
Antenna locations for the TA-4F and TA-4J are provided by this drawing. *(U.S. Navy)*

EXTERIOR LIGHTS

Exterior lighting for the A-4E and -F is illustrated in this drawing. *(U.S. Navy)*

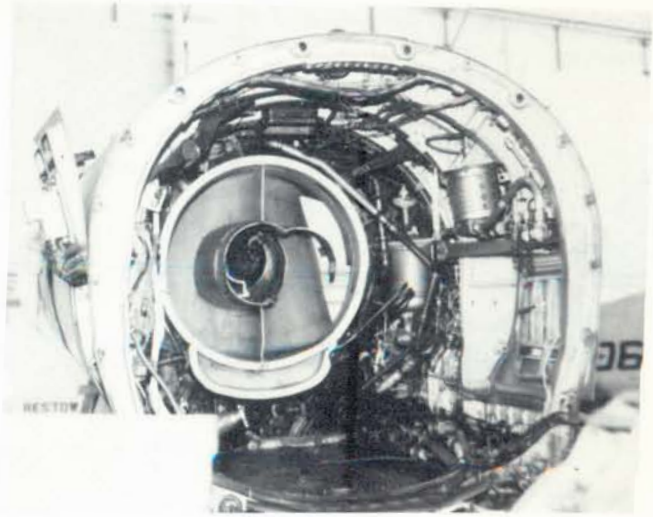


This is the typical control stick used in the later versions of the A-4. *(U.S. Navy)*

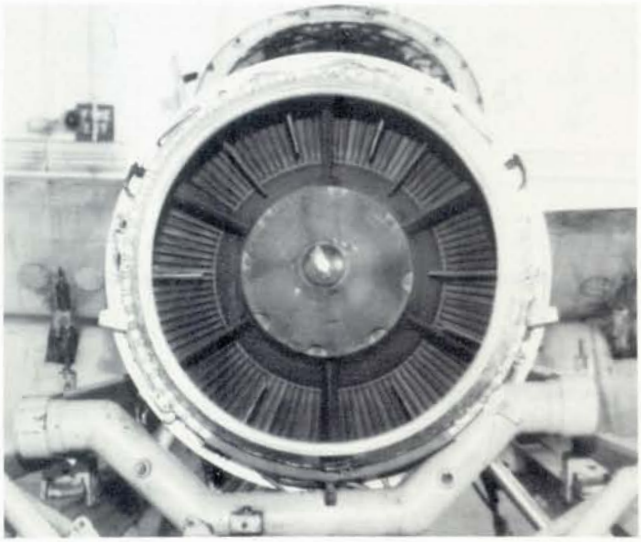

VIEW A
VIEW B
1. SHOULDER HARNESS ROLLER FITTINGS
2. NES-16 PARACHUTE (ESCAPAC 1A-1)
3. NES-12 PARACHUTE (ESCAPAC 1G-3)
4. PARACHUTE RIPCORD
5. OXYGEN AND COMMUNICATION HOSE
6. OXYGEN AND COMMUNICATION HOSE (TO CONSOLE)
7. CUSHION
8. EMERGENCY OXYGEN HANDLE (MANUAL)
9. EMERGENCY OXYGEN LANYARD (AUTOMATIC)
10. SURVIVAL KIT HOOKS (2)
11. HIP HARNESS RELEASE FITTINGS
12. EMERGENCY OXYGEN PRESSURE GAGE
13. AN/URT-33 EMERGENCY RADIO BEACON AUTOMATIC ACTUATOR LANYARD
14. KIT STRAP RELEASE (ACC 352)
15. MANUAL KIT RELEASE HANDLE
16. PK-2 SURVIVAL KIT (ESCAPAC 1A-1)
17. RSSK-B SERIES SURVIVAL KIT (ESCAPAC 1G-3)
18. SURVIVAL KIT LUG (2)
19. NYLON HARNESS STRAP
20. STATIC LINE (EPC)
21. PARACHUTE ARMING LANYARD
22. SHOULDER HARNESS FITTINGS (PARACHUTE RELEASE)
23. EXTERNAL PILOT CHUTE (EPC)

The parachute used in the A-4F and TA-4F/-J series is shown here. *(U.S. Navy)*

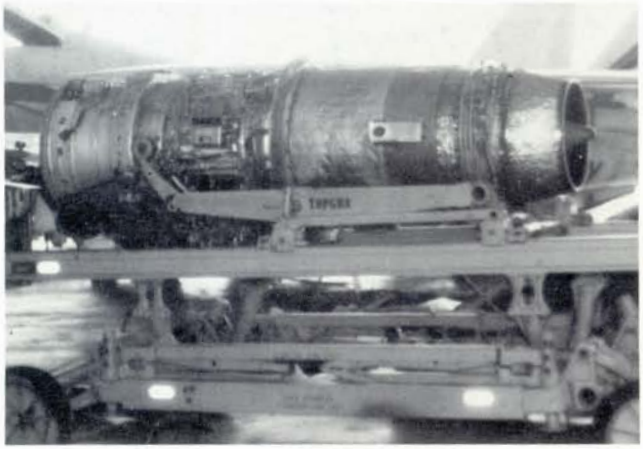
ENGINE DETAILS



With the aft fuselage section and engine removed from an A-4F, it is possible to look forward toward the intakes. Piping, lines, and other equipment are visible inside the forward fuselage. In this view, it is also possible to see out the right intake.

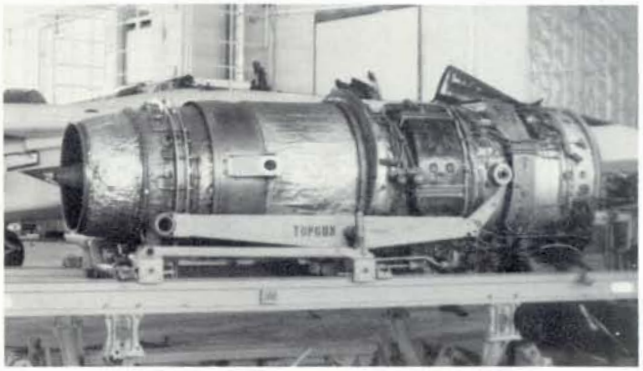


The front end of a removed J52-P-408 engine is shown here.



This is the left side of the engine.

This is the aft fuselage section removed from the aircraft.



The right side of the J52-P-408 engine is shown after removal from the aircraft.

The long tail pipe detaches from the engine. It is simply a tail pipe since the A-4 has no afterburner.

SKYHAWK COLORS

Interesting markings are painted on one of the early A4D-1s used for research and development. The aircraft was on display at an open house when this photograph was taken. In the background is another Douglas product, the F4D (later F-6A) Skyray. *(Jones)*

A4D-1, 137814, was the aircraft that set the closed course speed record. It was the first attack aircraft to set and hold this record. *(Jones)*

Colors of the Blue Angels' Skyhawks are shown in these two views. At left, numbers 3 and 4 taxi out for a show at NAS Atlanta in September 1986. Number 7 was TA-4J, 158722.

NAVY COLORS

A-4C, 148482, was assigned to VT-86 and photographed at NAS Oceana on August 26, 1973.
(Ostrowski via Flightleader)

Colorful markings adorn this A-4L, 147706, from VC-12. During the time the light gull gray over white scheme was in vogue for naval aircraft, the Skyhawk carried some of the most colorful markings ever seen on a military aircraft. *(Picciani via Flightleader)*

NA-4F, 152101, was photographed at Edwards AFB on November 13, 1977. It carries the markings for the Navy's test facility at China Lake. *(Huston via Leader)*

The color used with the light gull gray over white scheme gave way to the low-visibility tactical schemes as seen in this photograph. This Skyhawk belongs to VC-13, which has now been redesignated VFC-13.

This is A-4F, 154207, as photographed in October 1974. It is painted in the markings of VA-212. *(Handelman)*

MARINE COLORS

A-4E, 149654, visited the transit ramp at Dobbins AFB, Georgia, in November 1981.

"Pappy" Boyington's famous VMA-214 "Blacksheep" were flying A-4Ms when this photograph was taken in May 1980. Note the black sheep's head on the fuselage along with the words, ***VMA-214 BLACKSHEEP.***

VMA-331 also flew A-4Ms. This photograph is dated October 1976, and was taken at the El Paso International Airport.

The last Skyhawk built new was A-4M, 160264, and has been illustrated many times in its special colorful delivery paint scheme. This is how the aircraft appeared after it was assigned to VX-5. *(Jones)*

Twenty-three TA-4Fs were modified to OA-4Ms with an unusual configuration featuring the two-seat canopy and an abbreviated avionics hump. Markings are almost impossible to see on the tactical paint scheme. Like the A-4M, the TA-4M is also used exclusively by the Marines. This photograph was taken on June 4, 1988.

(Flightleader)

An A-4E from VA-12 is being hooked up to the number 1 catapult in preparation for launch from the USS Franklin D. Roosevelt, CVA-42. The aircraft has a buddy refueling store on the centerline station, and will act as an airborne tanker in support of other aircraft flying against targets in North Vietnam. The action took place on August 10, 1966, in the Gulf of Tonkin. *(U.S. Navy)*

Another A-4E is shown recovering aboard the USS Franklin D. Roosevelt on October 31, 1966. This view reveals the red on the inside of the speed brakes and lowered flaps. Although the official Navy description of this photograph identifies the missile under the right wing as an AIM-7 Sparrow air-to-air guided missile, it is actually a Shrike anti-radiation missile. Under the left wing is a Zuni rocket pod. *(U.S. Navy)*

A very early Skyhawk photograph illustrates an A4D-1 using rocket-assisted take-off (RATO) bottles which are attached to its speed brakes. The capability to use these take-off assisting devices remained a feature on Skyhawks for all production versions. *(U.S. Navy)*

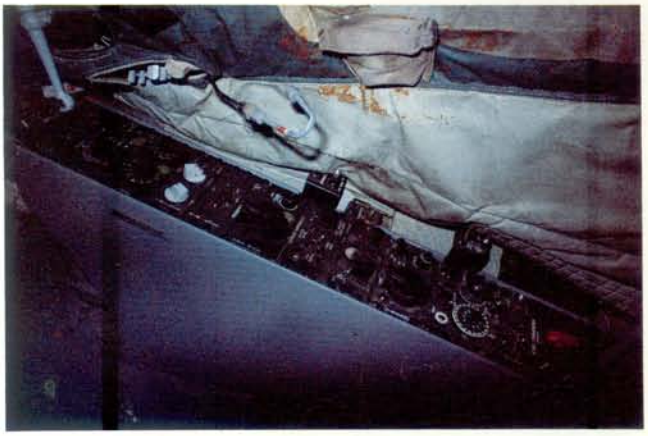
Taken on May 8, 1962, this photo shows a Skyhawk from VA-43 being refueled through the in-flight refueling probe in the high-speed refueling pits at NAS Oceana, Virginia. The refueling is accomplished while the engine idles. Note that the right side gun has been removed from this aircraft. *(U.S. Navy)*

A photographer's mate loads a combat camera in the forward end of the centerline pylon on a Skyhawk aboard the USS Bon Homme Richard, CVA-31. *(U.S. Navy)*

SINGLE-SEAT COCKPIT COLORS

The six photographs on this page compare the cockpit details and colors of an A-4A, shown on the left, to the A-4F on the right. At left is the main instrument panel in an A-4A, while the A-4F's instrument panel is illustrated in the photo at right.

At left is the left console in the A-4A, while the left console in the A-4F is shown at right.



Right console details in the A-4A are revealed in the photograph to the left, while the details of the right console in the A-4F are at right. It should be noted that the three photographs on the left side of this page were taken inside with a flash, while the three on the right were taken outdoors in sunlight. This accounts for differences in the color between the two sets of photographs.

TWO-SEAT SKYHAWK COLORS

Overall white was often the scheme used on two-seat versions of the Skyhawk. Splashes of color were usually the rule for aircraft painted in white. This is TA-4J, 153513, in the markings of VF-126, as photographed on November 1, 1975. (Flightleader)

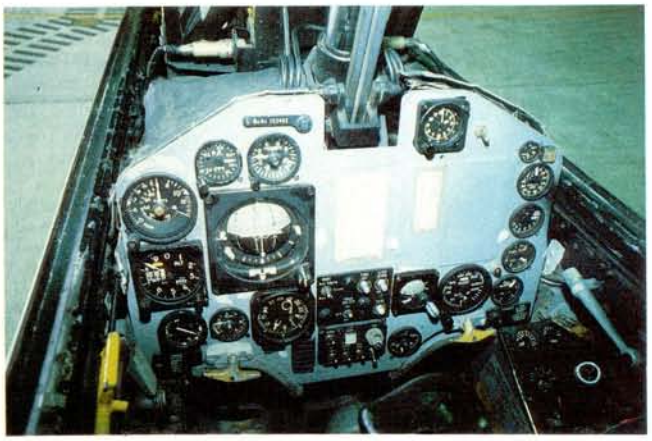
The "Saints" of VC-13 operated this TA-4J, 153504, in November 1976.

The "Redtails" of VC-7 flew TA-4J, 154322, and painted colorful markings on the standard light gull gray over white scheme. (Hebrok)

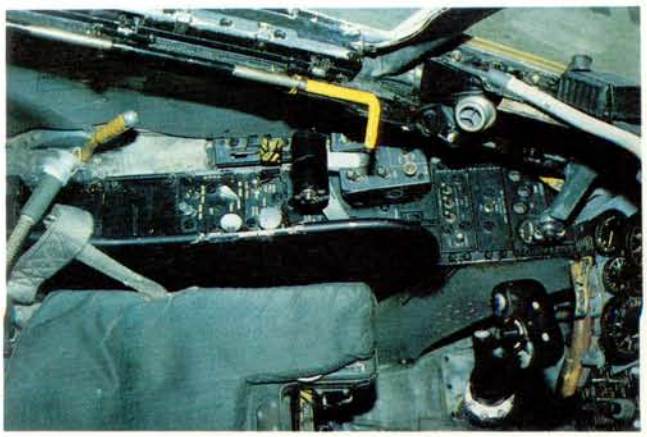
Typical colors for TA-4Js assigned to training squadrons are exemplified by this TA-4J that is making a touch-and-go landing aboard the USS Lexington, AVT-16. The photograph was taken in October 1986.

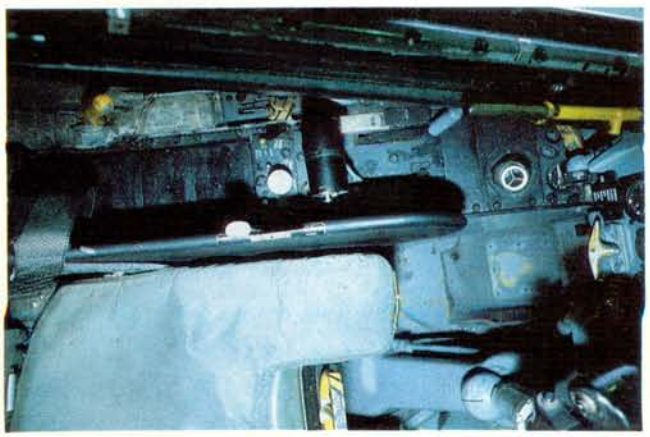
TA-4J, 156934, of VT-22, shows a deviation from the norm for training squadrons. It was photographed in December 1976 at El Paso International Airport.

TA-4J COCKPIT COLORS

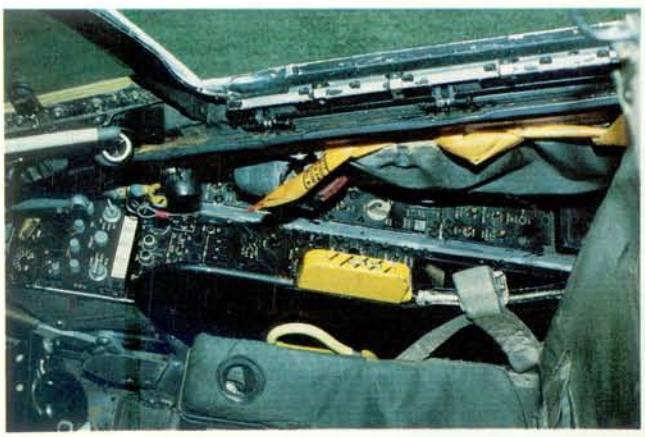


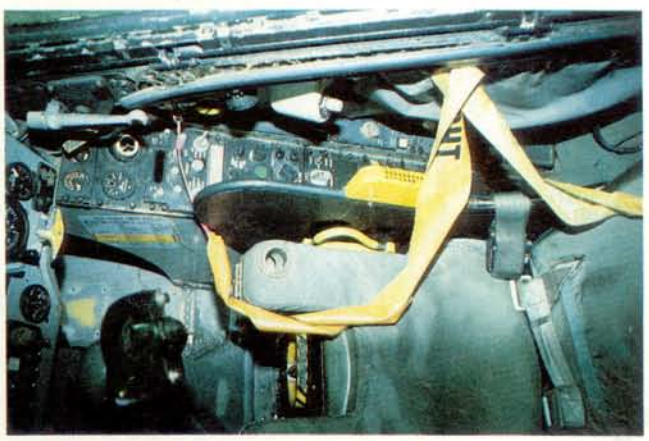
The six photographs on this page show the cockpit details of both the front and rear cockpits in a TA-4J. At left is the instrument panel in the front cockpit, while the instrument panel in the rear cockpit is illustrated at right.





The left console and throttle in the front cockpit is at left, and the left console in the rear cockpit is shown at right. The throttle is about the only thing on the left console in the rear cockpit.





The front right console is at left, while the right console in the rear cockpit is at right.

FOREIGN COLORS

While this book is basically limited to U.S. Navy and Marine versions of the Skyhawk, it is appropriate to take a look at some of the many foreign colors that have been applied to the A-4. At left is an A-4G from the Australian Navy, and at right is a TA-4G, also of the Australian Navy. *(Both London via Flightleader)*

An A-4K is illustrated at left, and a two-seat TA-4K is at right. Both aircraft are part of the Royal New Zealand Air Force. *(Both Flightleader)*

Singapore received A-4S single-seaters, as shown at left, and the unusual two-seat TA-4S, seen in the photograph at right. The TA-4S is the only two-seat Skyhawk with two single-seat type canopies. Both the A-4S and TA-4S were converted from former Navy A-4Bs. *(Left Jenkins via Flightleader, right Logan via Flightleader)*

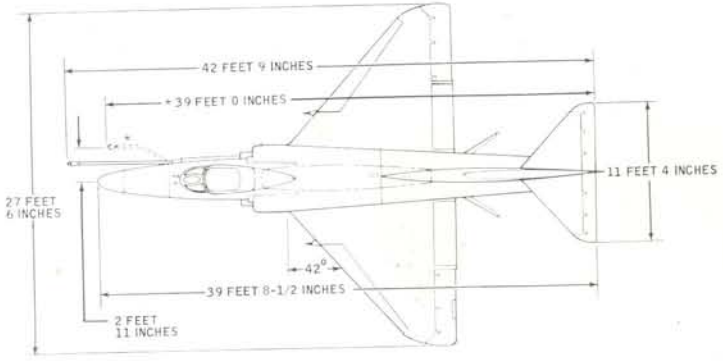
One of six TA-4KUs for Kuwait is shown here still in U.S. markings before leaving the United States. (Flightleader)

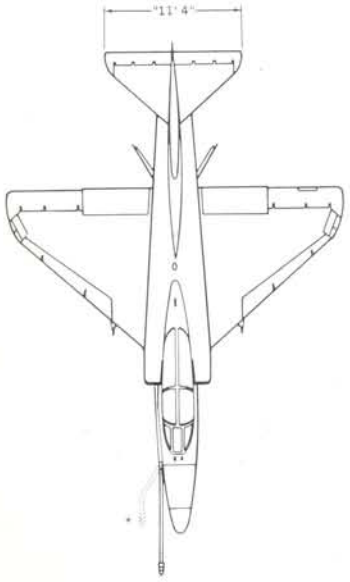
DIMENSIONS & DRAWINGS

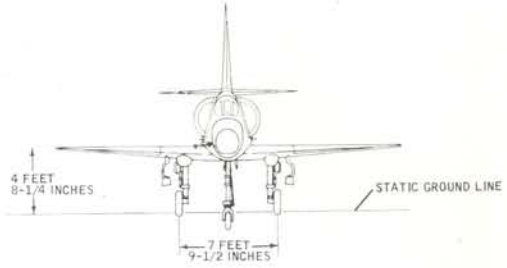
DIMENSION	ACTUAL	1/72ND SCALE	1/48TH SCALE	1/32ND SCALE
Length (A-4A, -B)*	39'5"	6.57"	9.85"	14.78"
Length (A-4C, -L)*	40'1"	6.68"	10.02"	15.03"
Length (A-4E, -F, -M)*	41'3"	6.88"	10.31"	15.47"
Length (TA-4F, -J)*	43'7.25"	7.27"	10.90"	16.35"
Span	27'6"	4.58"	6.88"	10.31"
Height (single-seat)**	14'10.5"	2.48"	3.72"	5.58"
Height (two-seat)**	15'7"	2.60"	3.90"	5.84"
Tail span	11'4"	1.89"	2.83"	4.25"
Tread	7'9.5"	1.30"	1.95"	2.92"

* Length measurements do not include the refueling probe and are measured with the aircraft sitting on the ground.

** Height measurements are to the top of the vertical tail "as built" and do not include any added antennas or fairings.

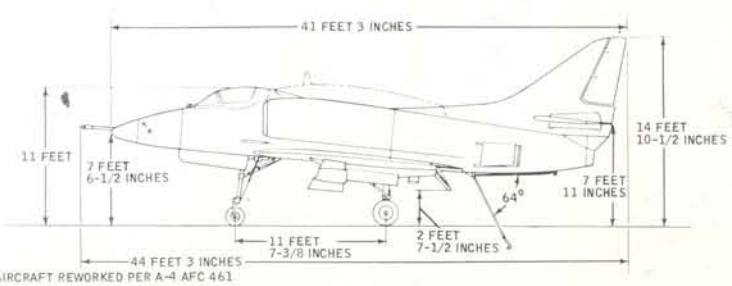




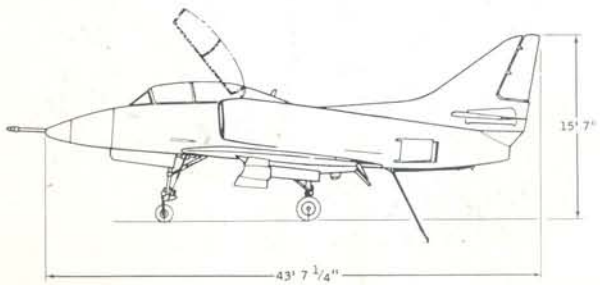


NOTE

DIMENSIONS ARE TAKEN WITH THE LANDING GEAR SHOCK STRUT AND TIRES INFLATED TO THE CORRECT PRESSURES.

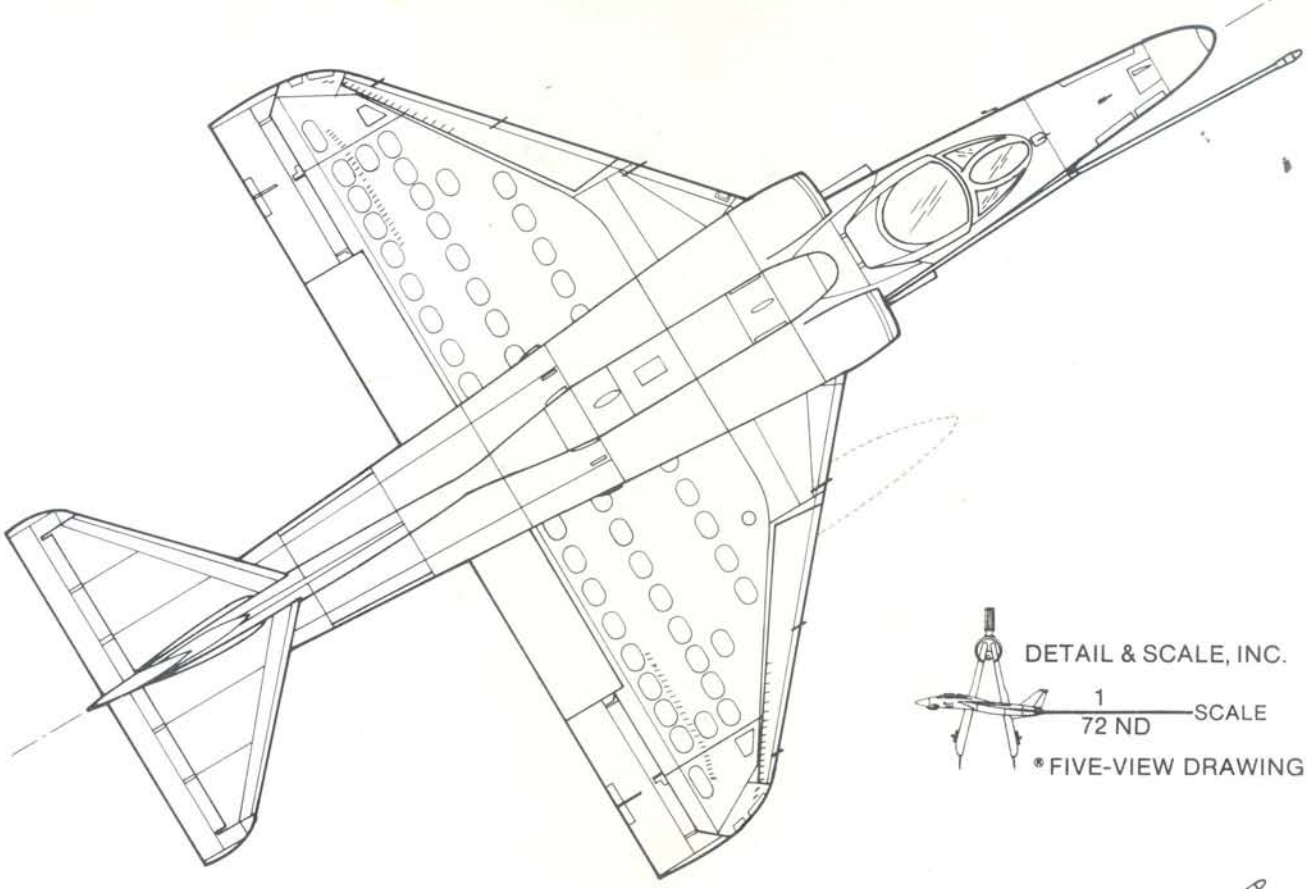


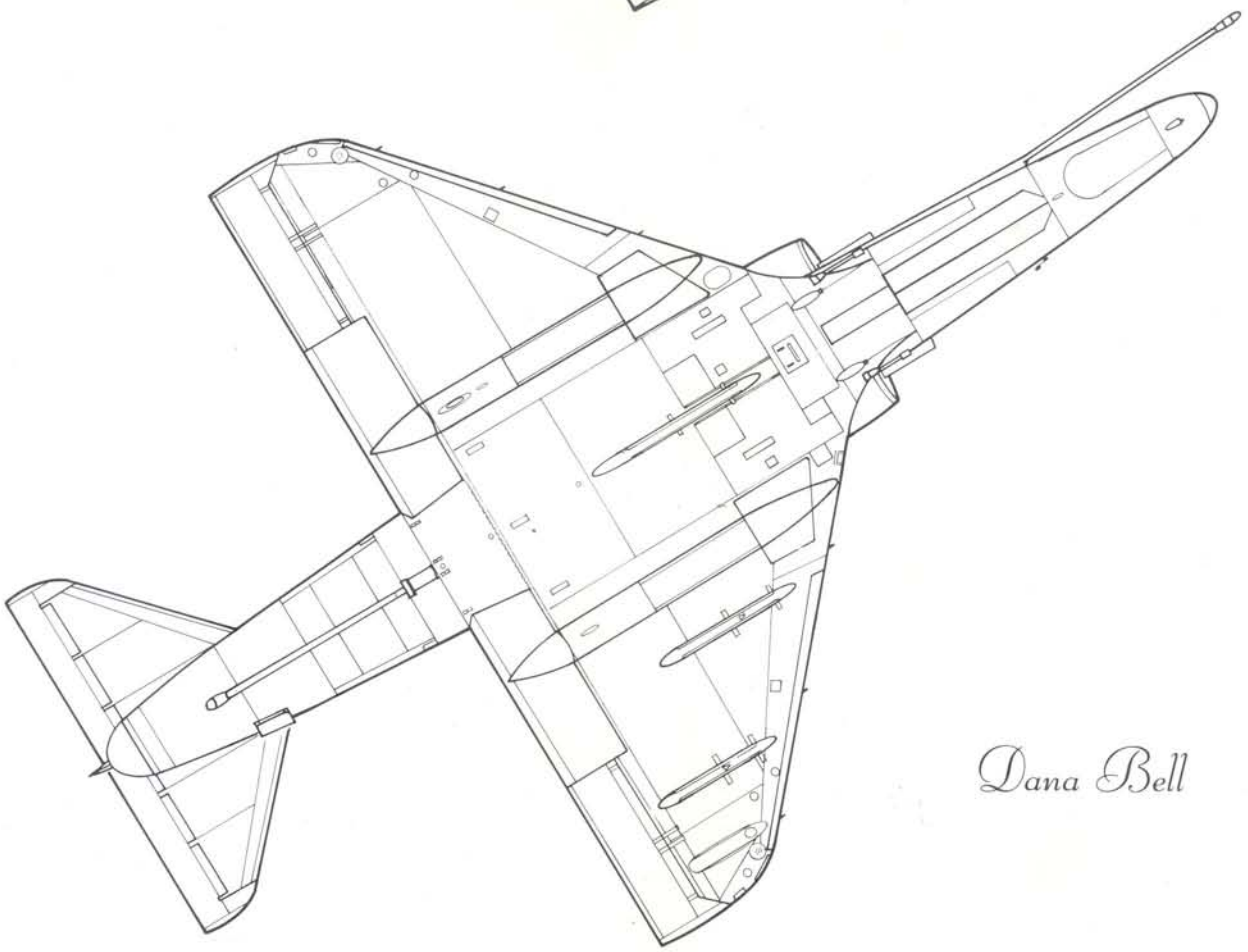
* AIRCRAFT REWORKED PER A-4 AFC 461



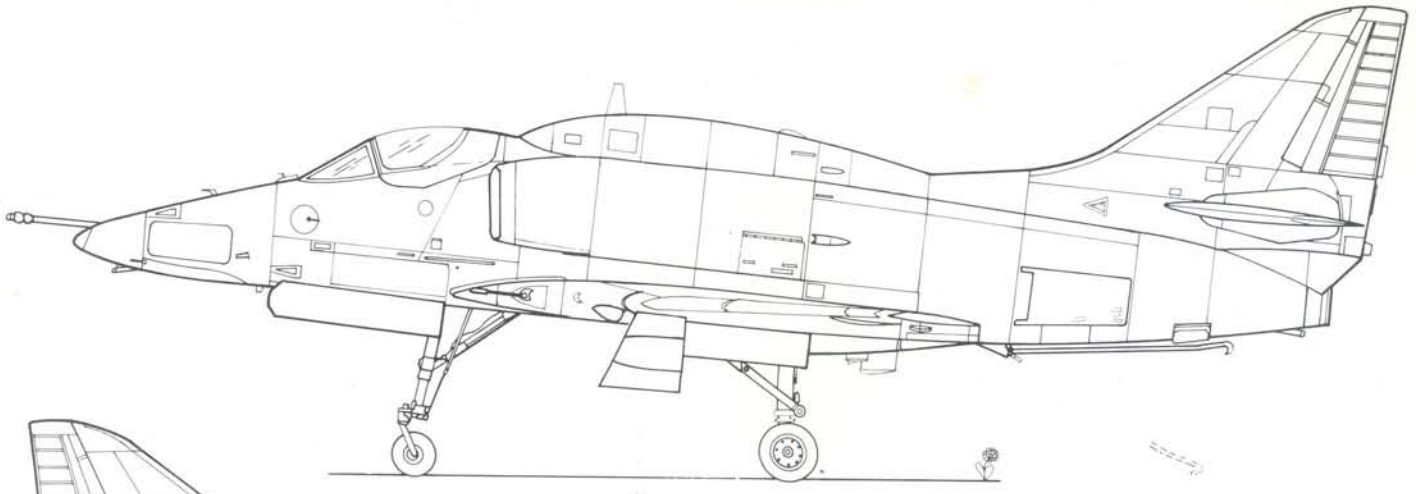
DETAIL & SCALE 1/72ND SCALE, FIVE-VIEW DRAWINGS

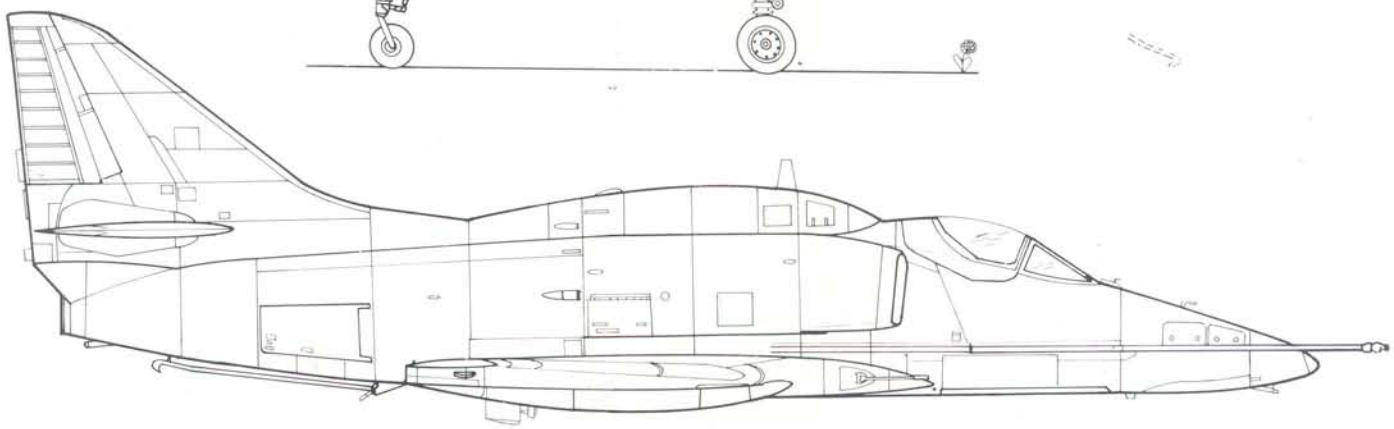
ALL VIEWS ARE OF AN A-4E EXCEPT AS NOTED



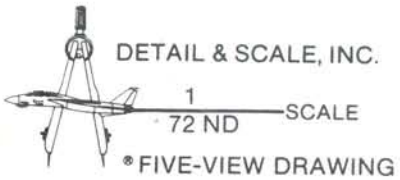


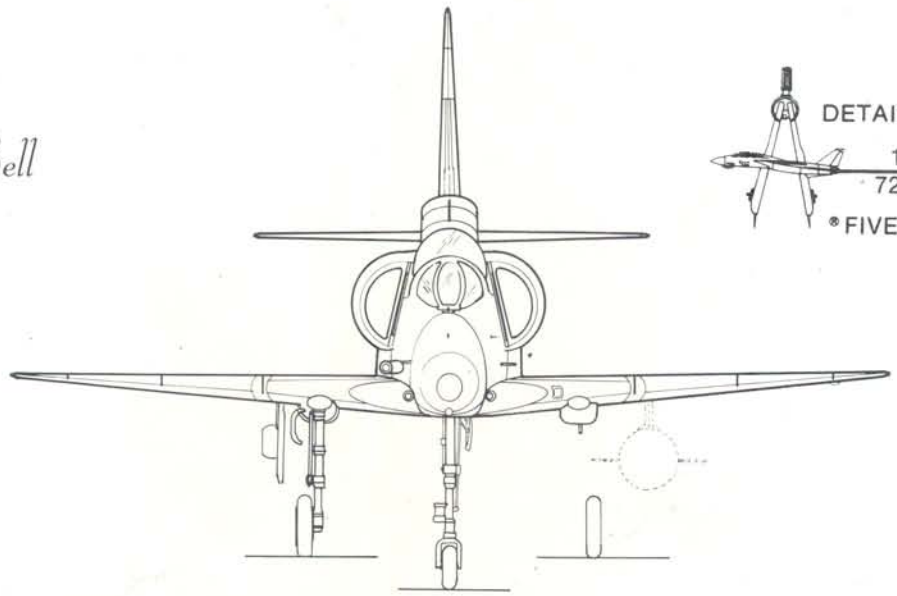
Dana Bell



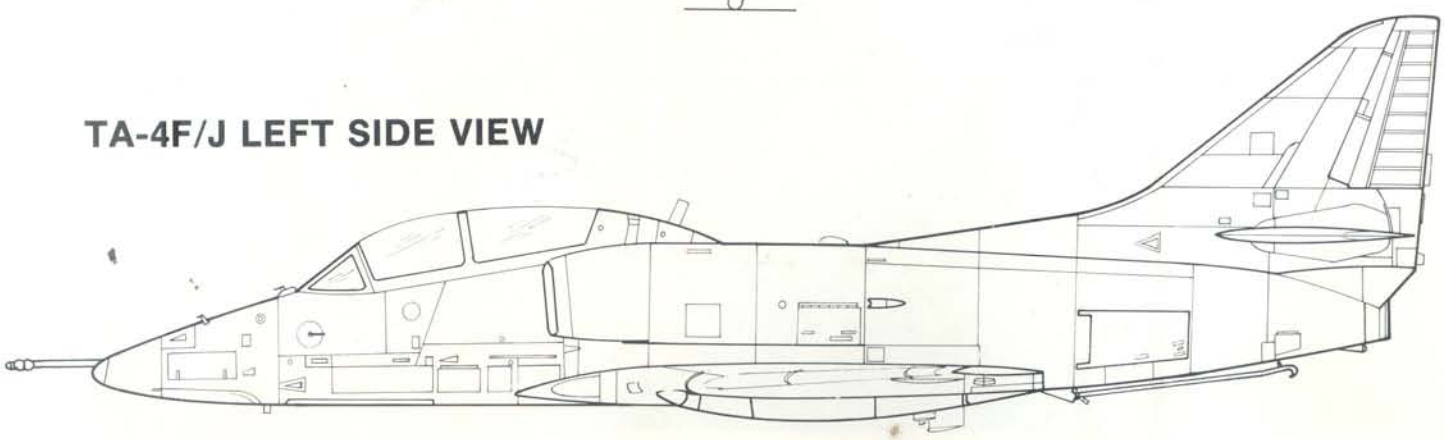


Dana Bell



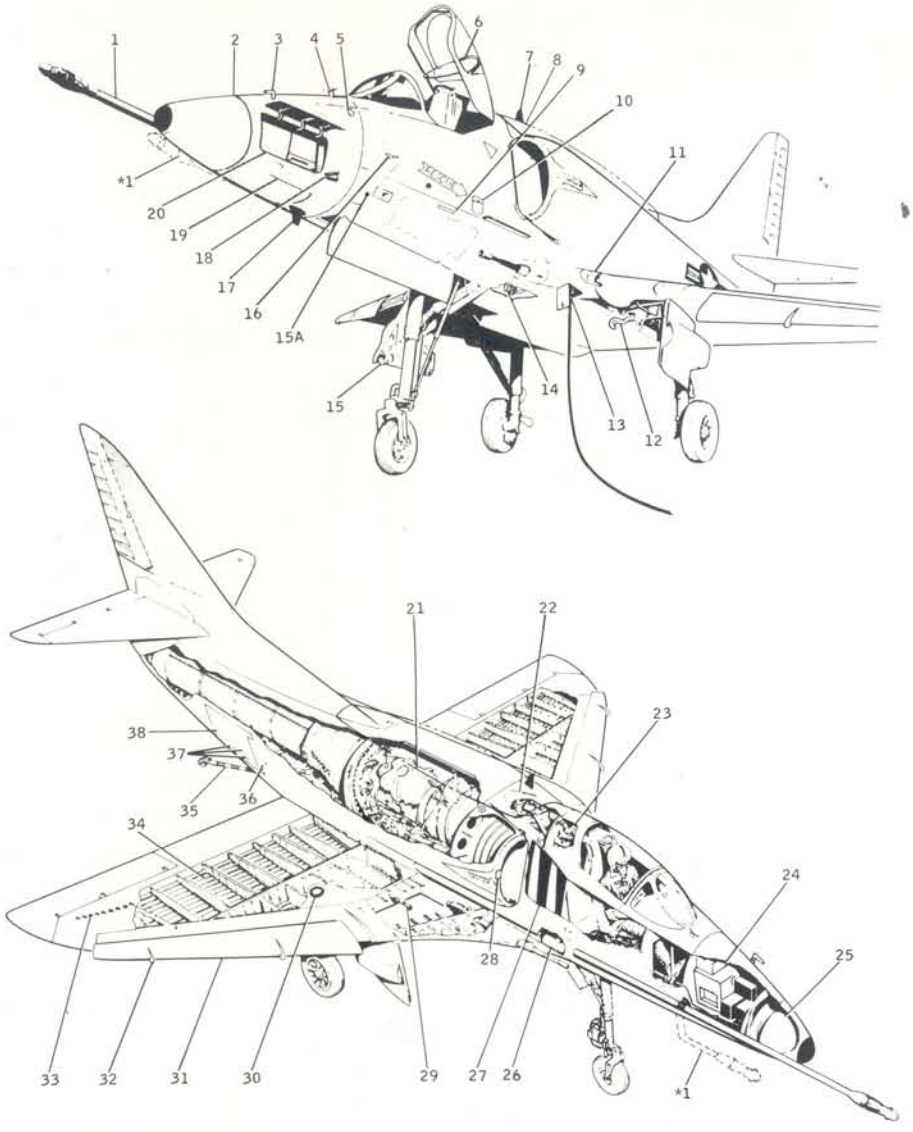


TA-4F/J LEFT SIDE VIEW

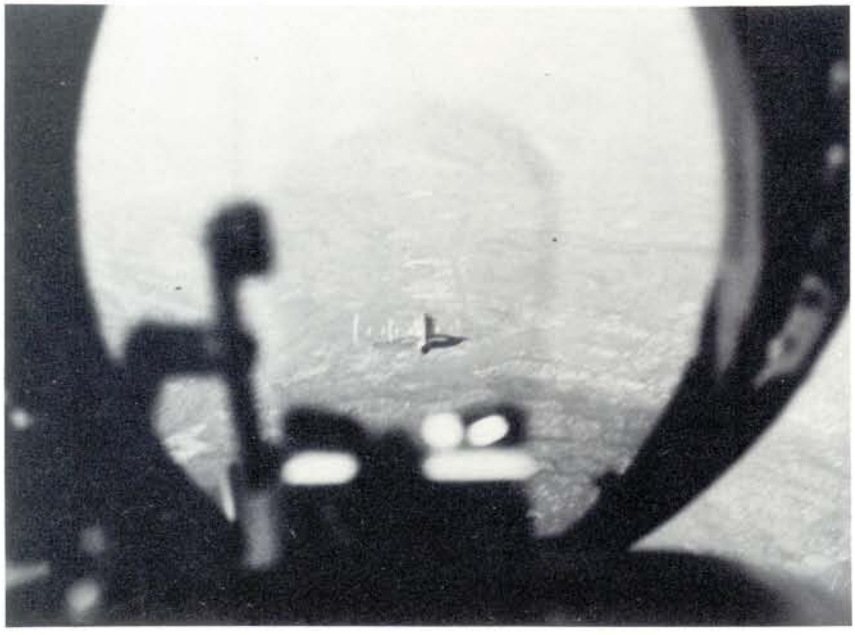


GENERAL ARRANGEMENT

1. Air refueling probe
2. Radome
3. Pitot tube
4. Total temperature sensor
5. Brake fluid level window
6. Thermal radiation closure
7. ARC-51A (UHF) radio antenna
8. Upper avionics package
9. Normal cockpit entry handle
10. External canopy-jettison handle
11. Approach lights
12. Catapult hook
13. External power receptacle and access door
14. Oil tank pressure filler cap
15. Taxilight
15A. Engine bleed static port
16. Angle-of-attack vane and transducer
17. ARN-52(V)/ARN-84 TACAN antenna
18. Pitot static orifice
19. ARA-50 (UHF-ADF) antenna cover
20. Nose compartment access door
21. Oil tank
22. Fuselage fuel tank filler cap
23. Cockpit canopy air bungee cylinder
24. Nose section electronic equipment compartment
25. APG-53A/B radar transmitter and receiver group
26. Emergency generator
27. Fuselage fuel tank
28. Air refueling probe light
29. Catapult hook
30. Wing tank filler cap
31. Slat
32. Barricade engagement detent
33. Vortex generators
34. Integral wing fuel tank
35. Arresting hook
36. JATO igniter terminal
37. JATO mounting hooks
38. Speedbrake



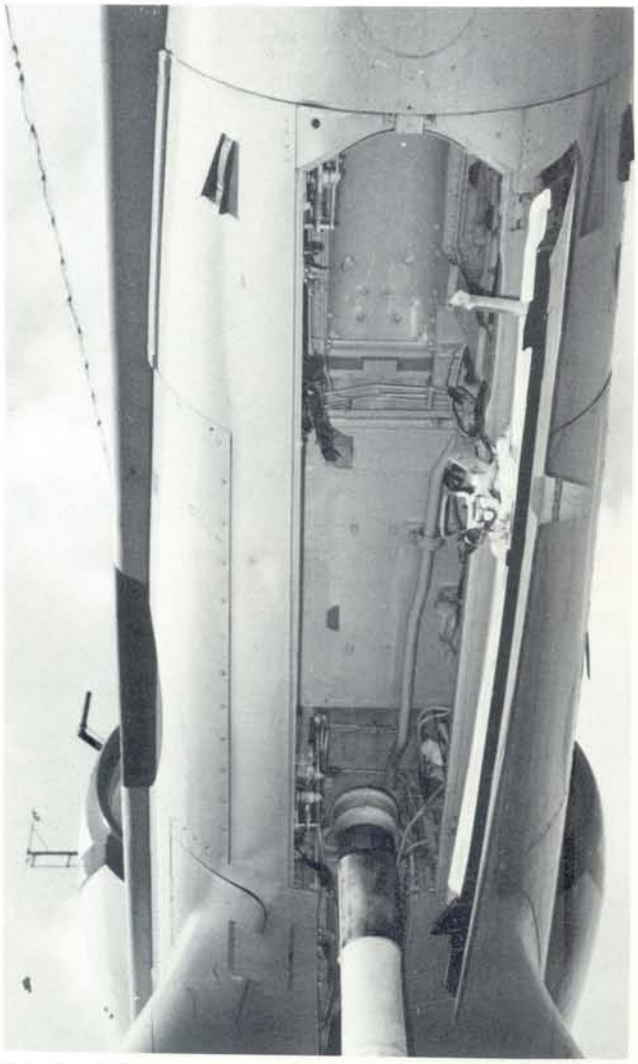
* AIRCRAFT REWORKED PER A-4 AFC 461



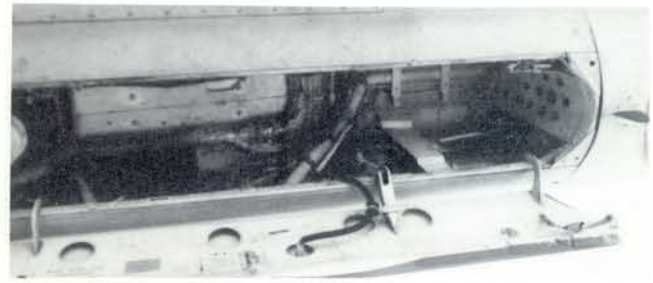
This interesting photograph was taken through the gunsight of an A-4F belonging to VFC-13. It shows another A-4F in the "pipper" during some "friendly" air-to-air combat training.
(VFC-13)

NOSE LANDING GEAR

These two photographs provide a good look at the details of the nose landing gear from both sides. In the photograph at left, the nose gear steering equipment is clearly visible at the bottom of and just behind the long, silver oleo portion of the strut. It should be remembered that not all versions of the A-4 had nose wheel steering. *(Both Cockle)*

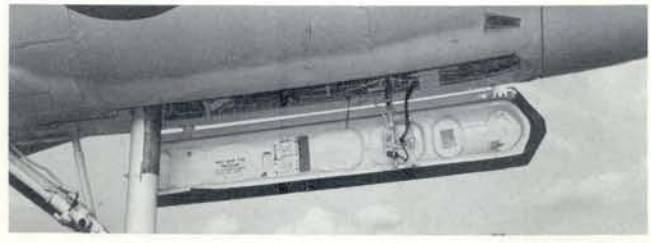


Details of the nose gear well can be seen in this view that looks up and aft. Wheel wells were usually painted gloss white, as were the struts and wheels.



This view looks up and slightly forward into the nose gear well.

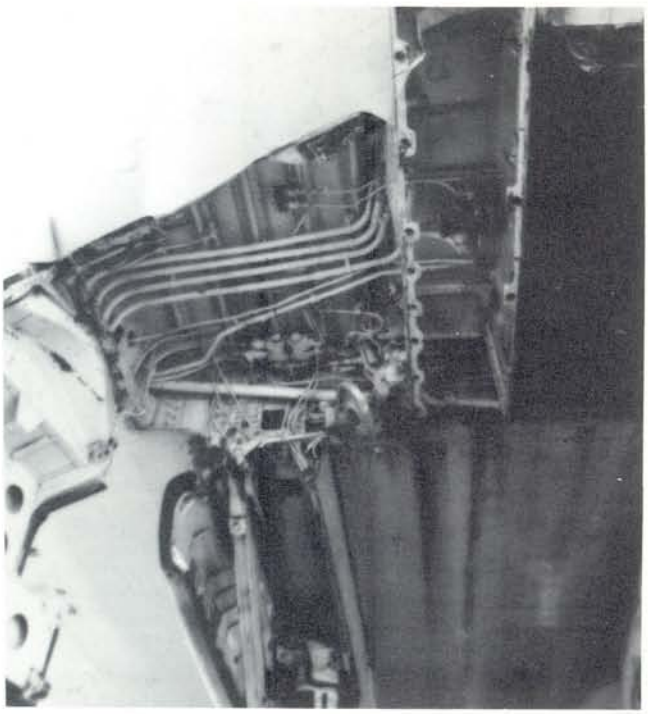
The aft strut for the nose gear has its own door and well. This photograph looks up into that well, and reveals the small door attached to the strut itself. Aft is to the left in this photograph.



The inside of the main nose gear door is illustrated here. It is painted white and is trimmed in red.

RIGHT MAIN LANDING GEAR

Outside details of the right main landing gear doors are visible here.



The interior of the right main gear well is shown in this photograph that looks up and aft. The large, rectangular opening to the right of the well in this photograph is the gun bay from which the gun has been removed.

Above, left and right: Details of all three landing gear are illustrated in these two photographs. Tie-down points and chains can be seen in the photo at right. Also revealed is how the catapult bridle attaches to the large hooks in the main gear wells.

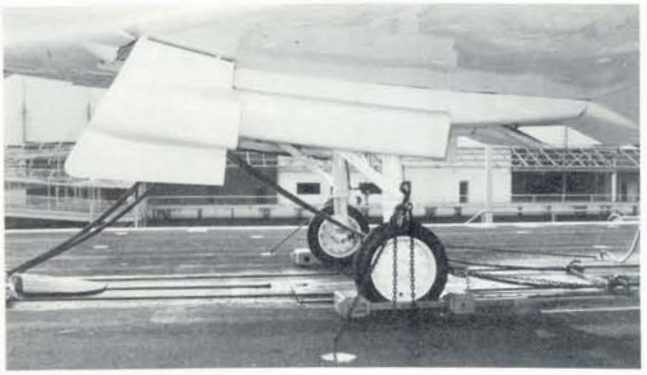
(Left Cockle, right author)

This view looks at the right main landing gear from the inside. Note the landing and taxi light located on the inside of the forward door.

Details of the inside of the right main wheel are revealed here.

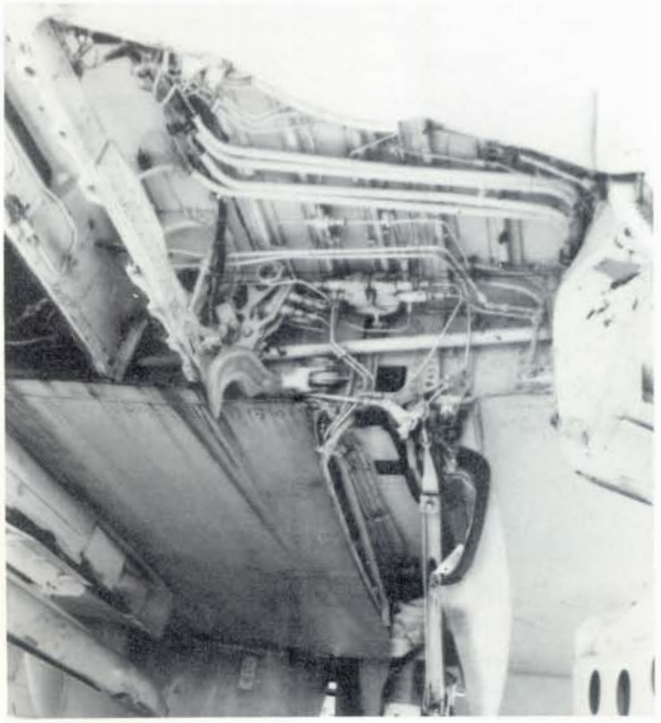
LEFT MAIN LANDING GEAR

The left main landing gear is shown here. Another look at the nose gear is also provided from a different angle than shown before. (Cockle)



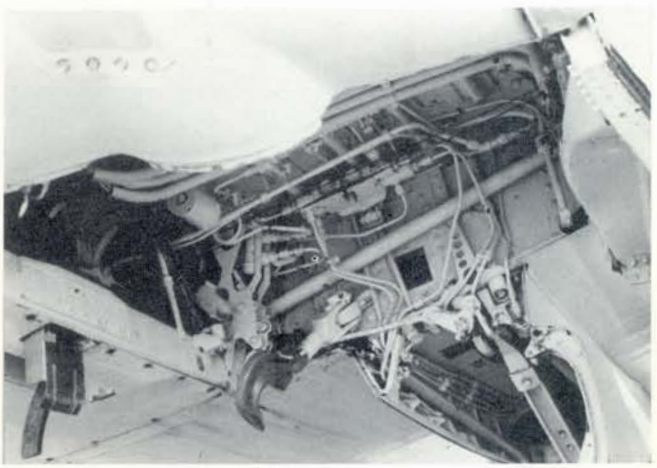
The left main landing gear doors are seen more clearly here than in the photograph at right.

This view reveals the details of the inside of the left main landing gear doors. How the bridle is attached to the large hook inside the gear well is also clearly illustrated. As with the nose gear doors, the main gear doors are trimmed in red.



The bridle hook, plumbing, and wiring inside the left main landing gear well are visible in this photograph that was taken looking up and aft.

A close-up of the left main landing gear wheel provides a look at its details.

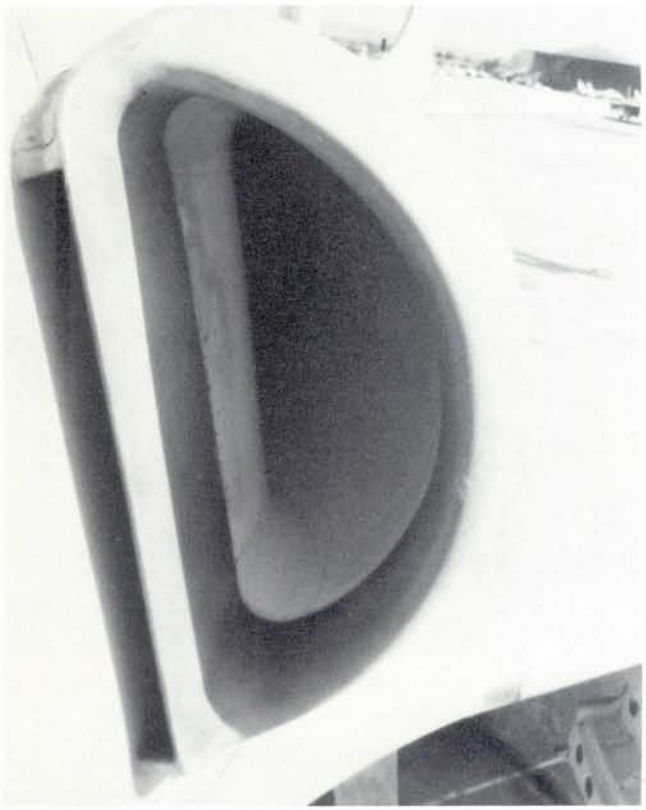


More details of the left main landing gear well are shown here.

INTAKE DETAILS

Two major styles of intakes have been used on the Skyhawk, with other smaller and less noticeable variations also existing. The first intakes were flush with the side of the fuselage as revealed in these two photographs. This style of intake was used on the A-4A, -B, -C, and -L.

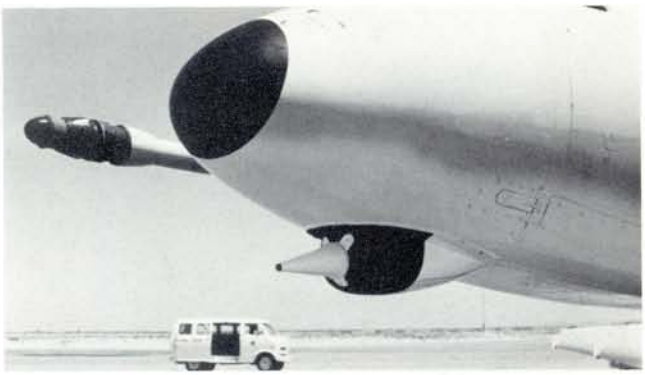
Center left and right: All other versions of the Skyhawk had intakes that were separated from the fuselage as shown in these two photographs. The small dot on the lip of the right intake, visible in the photograph at left, is a red light that illuminates the refueling probe for in-flight refuelings conducted at night. It was on the right intake of all Skyhawks except the A-4A, regardless of whether the intakes were flush or separated.



A screen could be placed over the intakes to prevent FOD (foreign object damage) while the engine was running. It was usually painted red.

A solid FOD cover was also used on the Skyhawk once the engine was shut down, as seen on this Blue Angels aircraft. However most of these FOD covers had the handle extend in both directions so that the cover could be used easily on both intakes.

FUSELAGE DETAILS



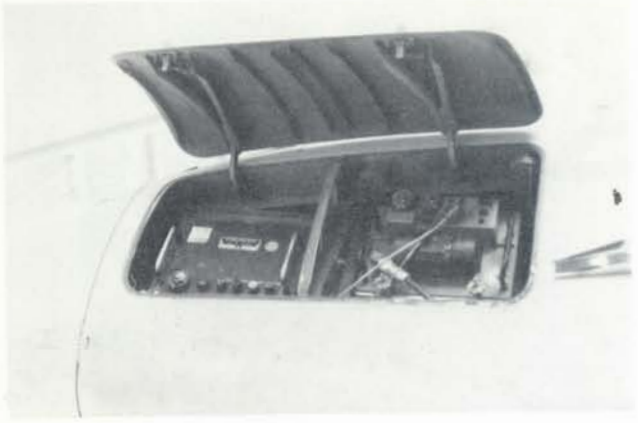
Various antenna arrangements have been mounted to the nose section of the different versions of the A-4 throughout its operational life. Many were for ECM or radar warning purposes. These antennas were first seen in large numbers beginning on the A-4E as a result of lessons learned in Vietnam. At left is an ECM receiver antenna on an A-4E, while at right is the nose of an A-4M. A listing of antenna locations and types is shown on page 30.

(Left author, right Cockle)

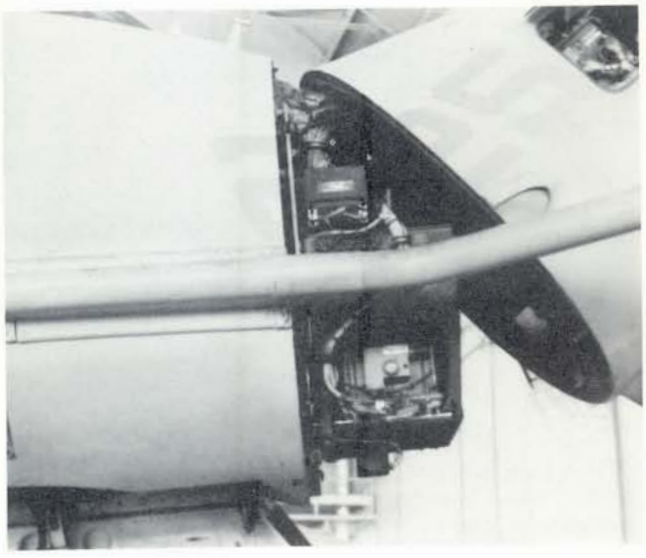
The emergency generator is housed on a pop-open door on the right side of the forward fuselage, just ahead of the wing root. A two-bladed propeller is turned by the air-stream to provide emergency electrical power.

This photograph of the left side of the nose reveals a number of Skyhawk details. On top of the nose, about a foot behind the nose cone, is the pitot tube. The small, round, brake fluid window appears as a dot high on the side of the nose ahead of the windscreen. The pitot static orifice is the small clip-like device just ahead of and in front of the nose gear door. On the side above the nose is the angle-of-attack vane and transducer. The TACAN antenna is a small blade antenna hanging below the nose in front of the gear door, but it is difficult to see against the building in the background. The blade antenna behind the cockpit is the UHF radio antenna.

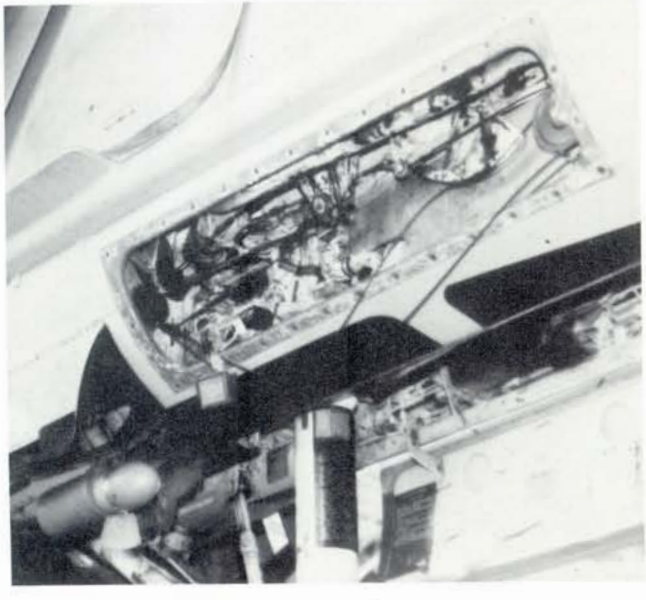
Two styles of refueling probes were fitted to the A-4. The original probe was straight, and is seen in the photograph at left. The probe, whether straight or bent, is used during hot refuelings (with the engine running) as seen in this photograph taken aboard the USS Lexington. The straight probe remains on many A-4s that are still in service today. The cranked or bent probe was introduced to keep fuel spray from entering the engine intake and causing engine surges. It has been retrofitted to many aircraft, and was the original probe on late aircraft such as the A-4M seen at right.

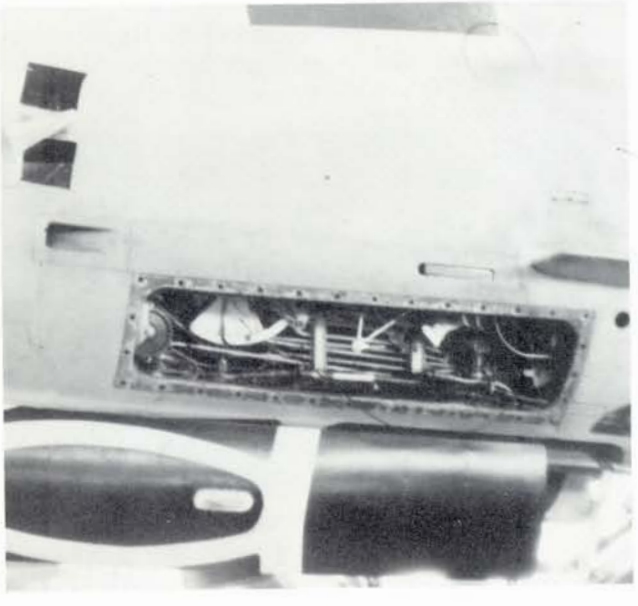


Nose compartment access doors were located on both sides of the forward nose section. The equipment carried inside varied between the different Skyhawk versions.

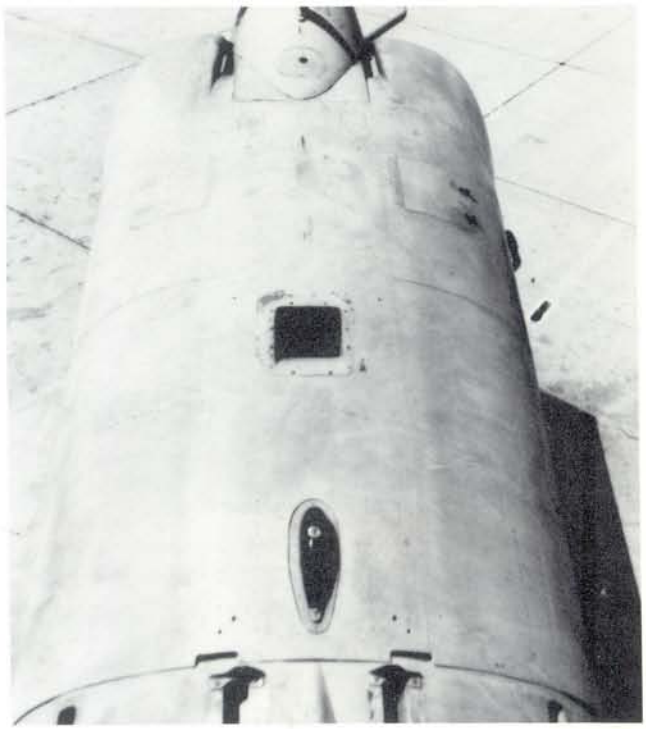


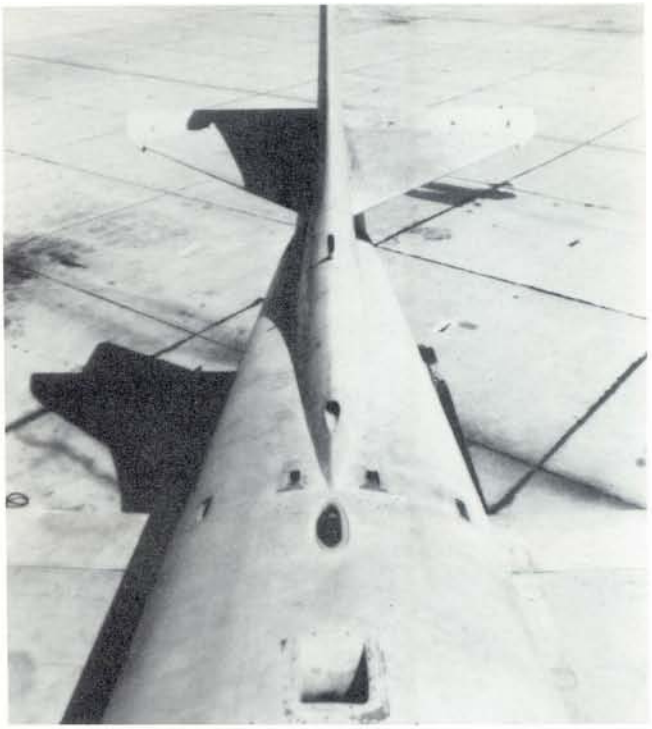
The nose section was hinged at the top and opened, as seen in these two photographs. Again, the equipment carried inside varied between versions.



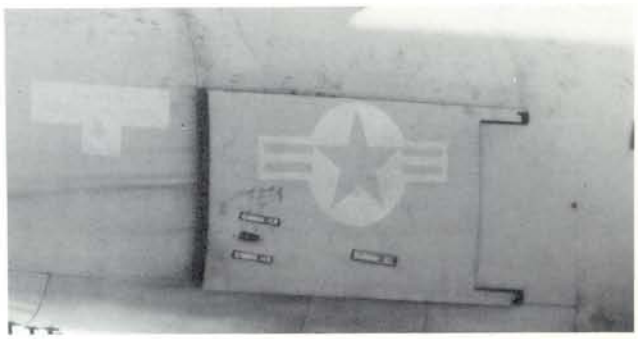


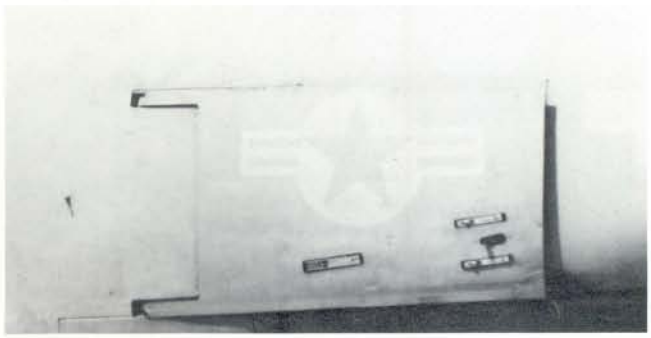
Two access panels were located on the lower sides of the forward fuselage section. They provided access to various wires, cables, and linkages.



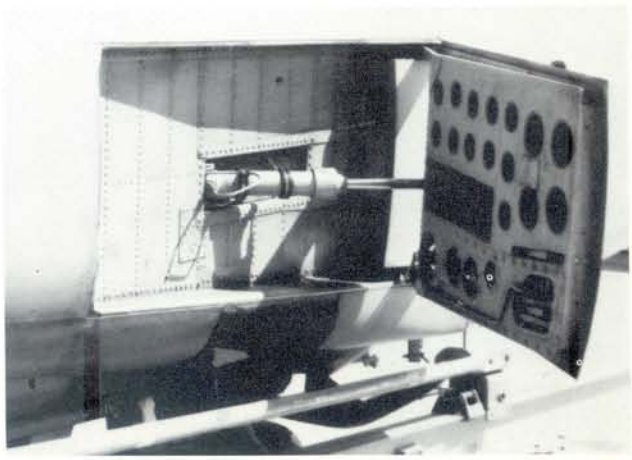


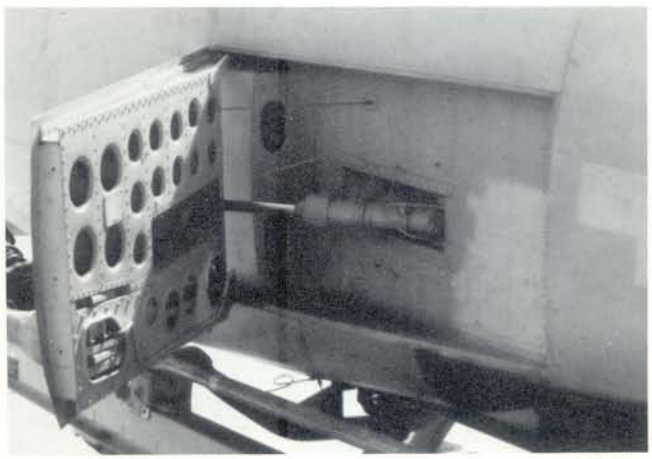
These two views, the left looking forward, and the right looking aft, show details on top of the fuselage of an A-4F from which the avionics hump has been removed. The large rectangular hole is the compressor bleed air exhaust duct. The upper anti-collision beacon is located just forward of the vertical tail.



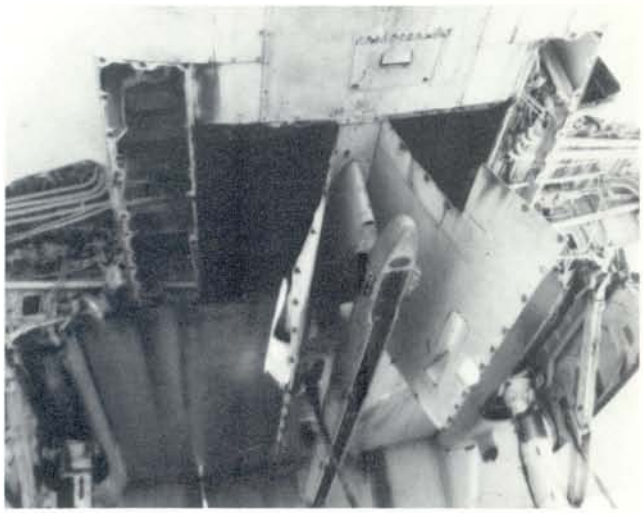


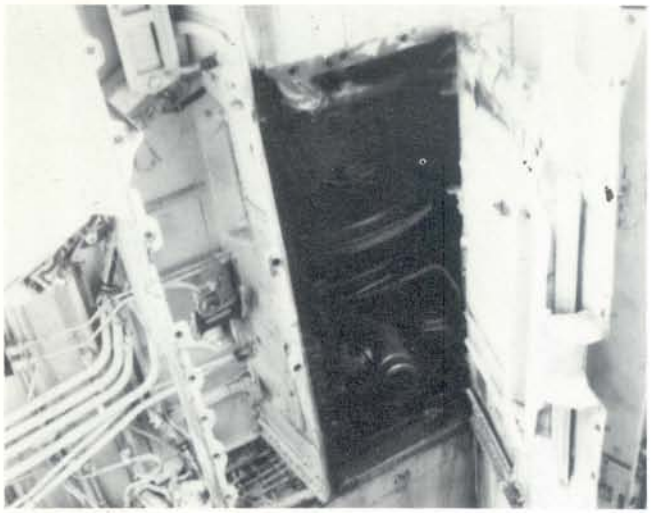
The fuselage-mounted speed brakes are shown in these two photographs. The clips on the brakes are for attaching RATO bottles.



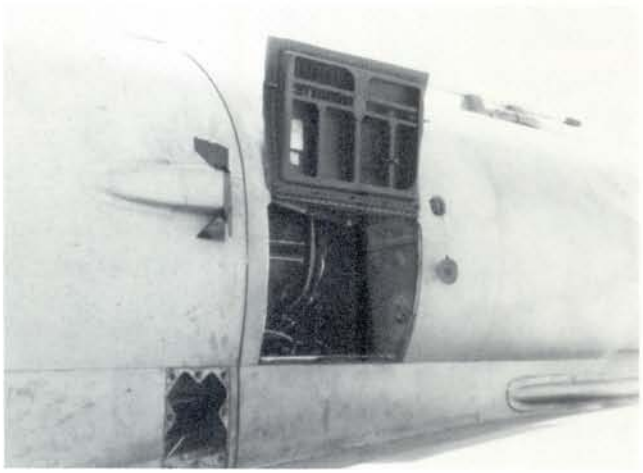


The interior of the speed brakes are revealed here. On the old gray over white scheme, and on the TA-4Js in the colorful markings, the insides of the brake doors were usually painted gloss red. On aircraft painted in the tactical scheme, they are usually the same gray as the outside of the doors and the fuselage, as shown here.

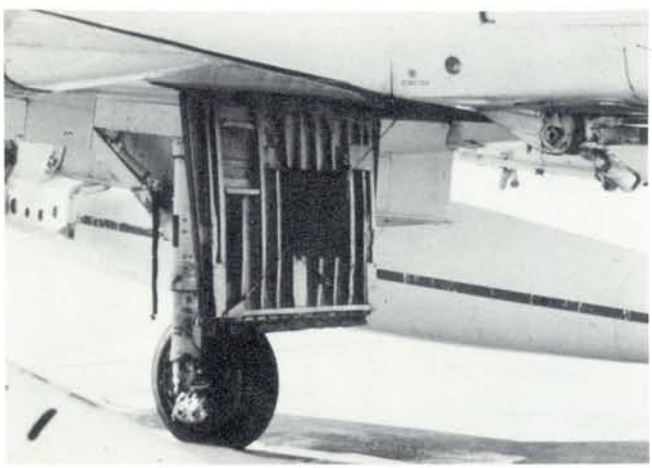




Although the aft fuselage section could be easily removed for quick access to the engine for major maintenance and engine changes, several access panels were also located at different points on the fuselage. Two such doors were located on the underside between the gun bays. At left is a view of these two doors in the open position, and at right is a close-up of the door on the right side revealing part of the forward, lower portion of the engine.



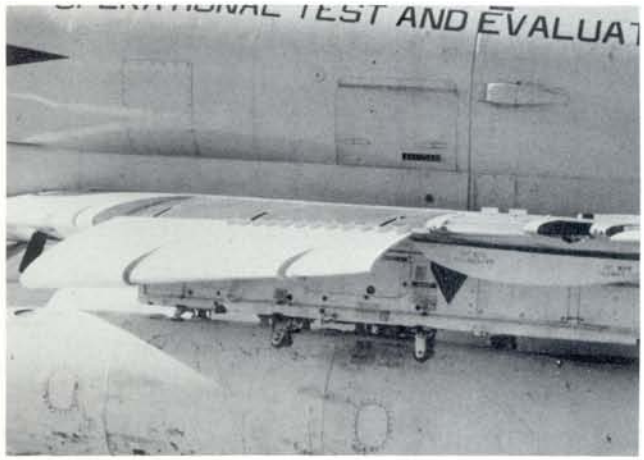
Access doors were also located on each side of the fuselage. The right side door is shown in the photograph at left, while the left side door is shown in the photograph at right. The interior of these doors was usually painted chromate green, but silver was sometimes used. Further access to the engine could be gained by crawling into the intake.



A lower access door was located between the flaps. Located on the center of the door was a small bag in which the "REMOVE BEFORE FLIGHT" streamers were stored. The insides of most of these doors that we have seen was painted silver, but some were chromate green. A few were painted white.

WING DETAILS

These two photographs reveal details of the Skyhawk's wings. The vortex generators on top of the wing and ahead of the ailerons are clearly shown, as are the wing tip lights, lowered flaps, and actuating rod and arm for the ailerons. (Both Cockle)



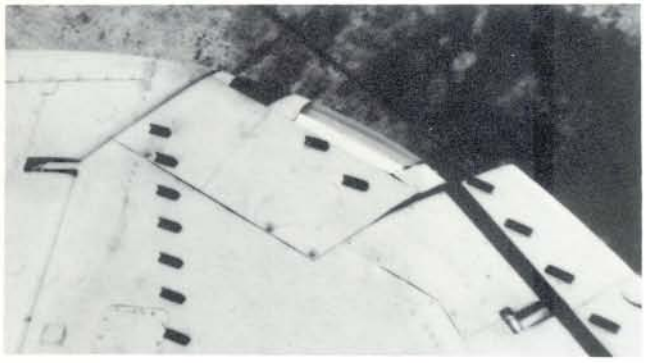
Details of the leading edge slats are shown in these two views. The outer portion of the slats had twelve vortex generators mounted on them, while two more were on the top of the wing just outboard of where the slat ended. These two lined up with those on the slat when the slat was forced to the up or retracted position by the air flow. These slats fell forward by their own weight, and were retracted by the airflow passing over them and the wing. This was another example of the simplicity of operation designed into the Skyhawk. Also note the two small fences on the leading edge of the slat. The dark colored area over which the slat retracts is gloss insignia red.

This view shows the extended slat on the left wing from below. Also note the position and navigation lights on and under the wing tip. The fairing just inboard of the wing tip is the radar altimeter antenna, and is under the left wing tip only. A good view of the outboard left wing pylon is also provided by this photograph.

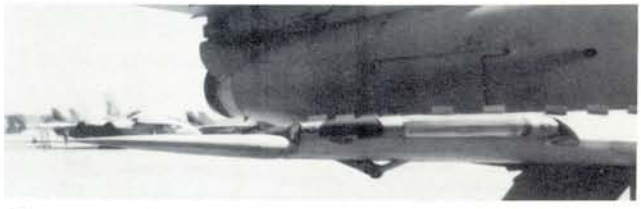
The inboard left wing pylon with a fuel tank attached is shown here. To the right is the fairing for the left main landing gear with the lower anti-collision beacon mounted on it.

This overhead view of a TA-4J shows large, black, non-skid walkways painted on the tops of the wings. Most A-4s had such walkways on top of the wings next to the fuselage, but they varied in shape, size, and they were not always painted flat black.

The walkway on this A-4F is not as large as that seen at left, and appears as a slightly lighter color than the rest of the aircraft. It has a non-slip surface to help insure a steady footing.



This view looks down at the lights on the left wing tip. The forward light is clear, and the aft light is red (blue-green on the right wing).



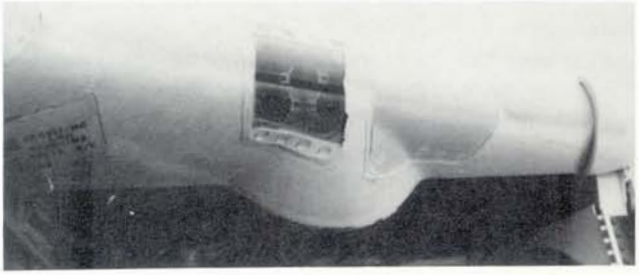
These two photographs show the locations of the wing tip lights on each wing.

This is the left aileron as shown from below. The actuating rods and connections for both the aileron and the tab are clearly visible. The aileron was balanced by the pointed portion extending forward of the hinge line at the wing tip.

The top of the right aileron is pictured here. Each aileron was attached at three hinge points.

The two cannons were buried in the leading edge of the wing, right at the root. One cannon was usually located on each side, but some TA-4s had only one or no cannon at all. A-4s used in the adversary role also usually had both cannons removed. Often, the area on the fuselage next to the cannon was painted black to help conceal gun blast smudges. A small step or shelf was added to the fuselage just above the gun on later Skyhawks to reduce the amount of gun gasses that were ingested into the intake.

The Blue Angels' Skyhawks had a long probe-like device on the left wing in place of the gun. (No gun was carried on the other side.) This contained a retractable ladder that could be used for boarding the aircraft.



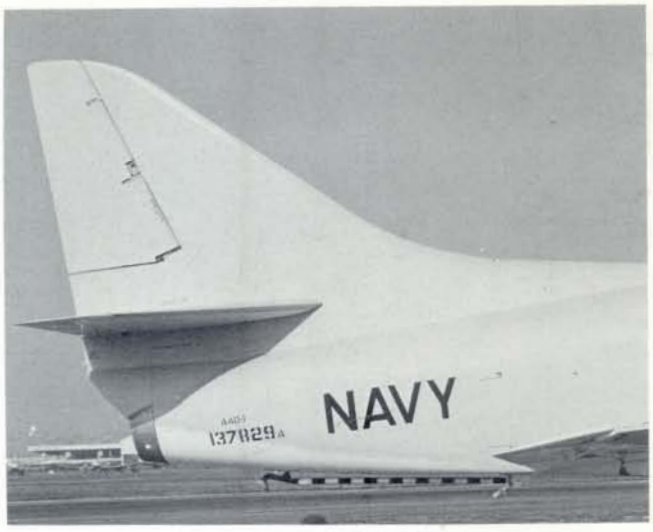
The approach indicator lights were located in the leading edge of the left wing just forward of the landing gear door.

Inboard of the approach indicator lights, and also in front of the gear well under the left wing's leading edge, was the ground electrical connection.

A-4A through A-4E Skyhawks had flaps but no spoilers on the wings. On the A-4F, -M and TA-4Fs and -Js, split flaps and spoilers were installed as shown in these two photographs. The insides were painted gloss insignia red on the gray over white schemes, and were gray on the tactical schemes.

On the aft end of the right main landing gear fairing were two airfoil-shaped devices hanging downward. The smaller one in front was a vent or breather for the fuel system, and the larger one is a fuel dump.

TAIL DETAILS

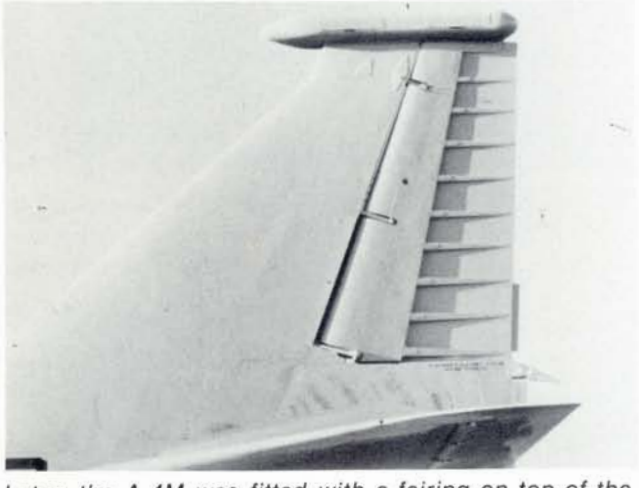


The original tail design for the first production Skyhawks is seen in this view. The vertical tail was an integral part of the aft fuselage section, was curved, and had a standard "skinned" rudder. There were no noticeable ECM antennas, because no such equipment existed at that time.

This is the basic design of the vertical tail used on most variants of the Skyhawk series. This particular photograph is of a tail on a TA-4J, and is devoid of any added ECM antennas or other gear. The ARN-52 aft TACAN antenna is on the trailing edge of the vertical stabilizer immediately above the "sugar scoop." Except for the A-4A, all Skyhawks had the ribbed or "tadpole" rudder as shown here. Most Skyhawks also had the curved tip on the vertical stabilizer. (Cockle)

Left: During the life of the Skyhawk, a number of additions were made to the tail sections as shown here. Sometimes these were added to existing airframes, and in other cases, these features appeared with the introduction of a new version. Note the antenna spike for the ECM ALQ-51/100 receiver on the trailing edge of the vertical tail, located just aft of the horizontal stabilizer. Another spike is located just under the exhaust, and is for the aft pulse transmitter which is also part of the ALQ-51/100 system. It should be noted that the precise location of these antennas varied from aircraft to aircraft. Other antennas are on opposite sides of the "sugar scoop," and a probe is on the leading edge of the vertical tail. A chaff/flare dispenser is located to the left of the tail hook. The APN-154 radar beacon antenna is on top of the tail. (Cockle)

The A-4M originally had a vertical tail with a squared-off tip. This tail design was also used on the Israeli A-4H and A-4N, Kuwait's A-4KUs and TA-4KUs, and New Zealand's A-4K and TA-4Ks. The parabrake housing was a standard feature on the A-4M. (Linn)



Later, the A-4M was fitted with a fairing on top of the vertical tail. It housed the aft antennas for the ALR-45 homing and warning system. This fairing was also retrofitted to some A-4Fs and a few other Skyhawks to include those operated by Kuwait.

The A-4 series had a tail plane and elevator combination as opposed to an all-flying tail design. The elevator is shown in the full up position in this view. Note the marks on the vertical tail just forward of the horizontal stabilizer that indicates the pitch to which the stabilizer is set. This stabilizer appears to be set in the full nose down position.

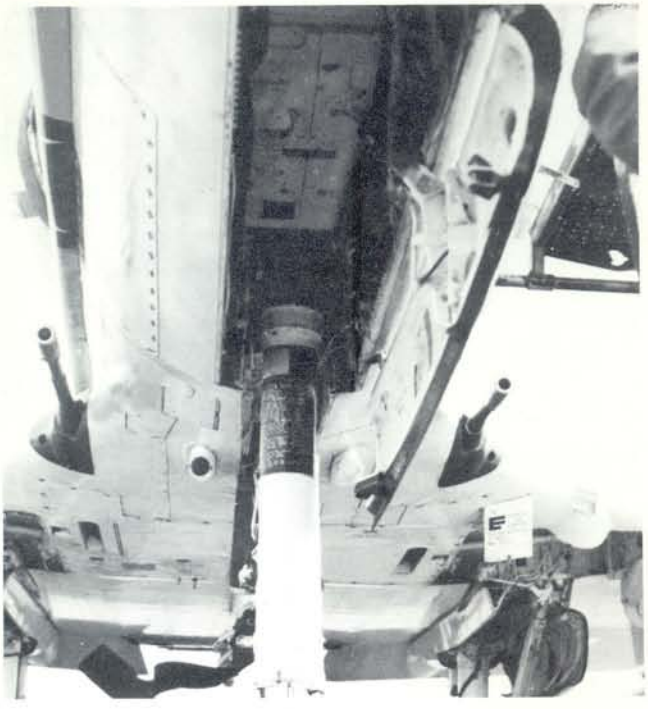
In this view the horizontal stabilizer is trimmed to the full nose up position, and the opening under it is visible. Two small access panels, that appear as black rectangles, are visible under the stabilizer. Another open panel can be seen on the vertical tail, and provides access to the linkages for the rudder.

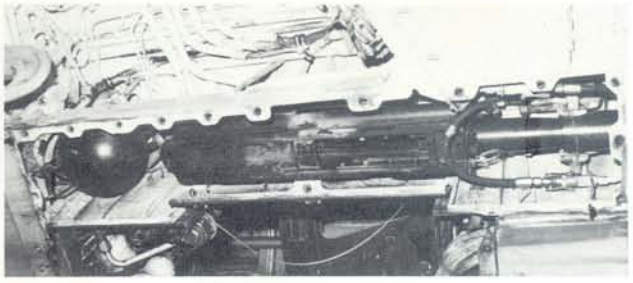
The retracted tail hook is shown here. The catapult hold-back cable is attached to the device which extends down from the hook where it connects to the fuselage. The chaff/flare dispenser is also visible, and is covered with a solid plate.

In this view the chaff/flare dispenser is seen again, but this time the plate is not in place.

These two views show details of the arresting hook in the lowered position.

ARMAMENT & EXTERNAL STORES





Above left: Most Skyhawks were armed with two 20mm cannon located in the wing roots. The Israelis sometimes used 30mm cannon, and TA-4s often had only one or no guns installed. Skyhawks used in the adversary role also usually had their guns removed as a weight-saving measure. Notice that the right gun (to the left in the photograph) extends forward further than the left gun. Also note how the barrels line up with the shell ejection slots under the wings. Guns were supplied with 100 rounds of ammunition each, except for the A-4M which had 200 rounds each.

Above right: This view looks up into the right gun bay of an A-4M with the gun in position. Forward is to the right in this photograph. (Linn)

The Skyhawk could carry jettisonable external fuel tanks on the centerline and inboard wing pylons. The centerline pylon could carry tanks of 150, 300, and 400-gallon capacities. The inboard wing pylons could carry 150 and 300-gallon tanks, with the 300-gallon type being the most common. The tanks were vented, and contained provisions for gravity fueling, pressure fueling, and pressurization to effect fuel transfer to the integral wing tank. At left is a photograph of an A-4C dropping two 300-gallon tanks from its wing stations, while at right is a close-up of a 300-gallon tank attached to the left inboard pylon of a Marine Skyhawk. (Left U.S. Navy, right author)

This close-up shows six Mk 82 high-drag Snakeye bombs on the centerline station on an A-4C. (U.S. Navy)

The Skyhawk could also carry laser-guided and other "smart" bombs as well as the standard, free fall weapons. This laser-guided bomb is shown on its loading dolly beneath the inboard right pylon. (U.S. Navy)

The A-4 could carry conventional bombs on all hard-points. This Skyhawk has 500-pound high drag bombs on the outboard pylons, 1000-pound bombs on the inboard pylons, and a 2000-pound bomb on the centerline station. The centerline station could carry up to a 3000-pound bomb. (U.S. Navy)

One of the original requirements for the Skyhawk was that it could carry and deliver a nuclear weapon. Fortunately, it never had to perform that mission, but its ability to do so provided the Navy with an important part of its nuclear delivery capability during the cold war years. This capability contributed to America's policy of deterrence which helped prevent a nuclear war. A nuclear "shape" or training weapon is on the centerline station of this Skyhawk. (U.S. Navy)

Rockets also provide an important part of the Skyhawk's offensive punch. At left is an A-4E with rocket pods for 2.75 inch rockets on all five hard points. Larger, five-inch, Zuni rockets are carried in pods on stations two and four on another A-4E in the photo at right. (Both U.S. Navy)

The Bullpup A missile was one of the first guided missiles carried by the Skyhawk. Three of the command guided missiles are shown here on the pylons of an A-4C. (U.S. Navy)

The Shrike anti-radiation missile was used extensively by Skyhawks in Vietnam to attack enemy radars that were guiding surface-to-air missiles (SAMs). (U.S. Navy)

MODELERS SECTION
KIT REVIEWS

Note: As stated in our introduction, we are having to keep our reviews of kits to a minimum because of the large number of A-4 models that have been issued over the last thirty-plus years. We are providing complete reviews for only the best kits in each scale, while general comments are included for all others. When a company has issued more than one kit that is based on the same molds, or a retooling or updating of earlier molds, we are covering the entire series with one or two reviews, and are pointing out the differences between the otherwise similar kits as they relate to the original molds. We are also trying to provide some basic information about the conversion kits and accessories available for A-4 models. It is our intention to provide the modeler with the basis for choosing the best model for any version of the Skyhawk he wishes to build in each of the more popular scale. We regret that a complete review of every model is not possible, but we hope that our general comments about each kit will assist the modeler in deciding if he wants to buy or use that kit or another in modeling the Skyhawk.

1/300th SCALE KIT

Nichimo A-4F, Kit Number 23

This is the smallest model available of the A-4 except for those aircraft that come as part of the air group on models of aircraft carriers. It was issued in 1984, and includes thirteen pieces in light gray plastic. It is part of a series of eleven 1/300th scale Naval aircraft, and is packed with the RA-5 Vigilante. Even in this tiny scale, the model has engraved panel lines and an ordnance load of two Sidewinders, two Bullpups, and a centerline fuel tank. It may be hard to see when you are finished, but it is a nice model considering its very small size. Decals are for VC-1.

1/150th SCALE KIT

Sankyo A4D, Kit Number 37

The only evidence that this kit exists as far as we know is that it is listed in Shanks guide as being released in 1960. It has a present market value of between two and four dollars to collectors.

1/144th SCALE KIT

Bachman A-4, Kit Number 78

The only Skyhawk model in 1/144th scale is this Bachman kit released in 1964. It is a pre-assembled model with press-on decals and no interior detail. The landing gear is made of vinyl plastic. About the best that could be done with it is to cut off the landing gear, remove the stickers and replace them with some decals from the spares box, then put the model on a stand in the in-flight position. This model is in no way comparable to present 1/144th scale kits.

1/100th SCALE KITS

Takara A-4M, Kit Number 441006.3

Released in 1985, this is the newest and best of the 1/100th scale Skyhawks. The kit contains a single-piece canopy, fifty-two pieces in tan plastic, including a two-piece stand, and four figures. These include two pilots, one seated and one standing, and two ground crew personnel. Also provided is a cart for bombs and another for a fuel tank to be used in a diorama. Also for diorama purposes is a section of tarmac that is printed on the inside bottom of the box.

The cockpit consists of a seat only, but ordnance includes two Sidewinders, two Bullpups, and six bombs. The kit has very fine engraved panel lines, and is generally of excellent quality. With the kit comes a 1/24th scale standing pilot figure that has a hook for a right hand and an artificial leg. Decals are for VMA-214 and fictional markings for the Royal Asian Air Force which is based on a Japanese comic book.

Jim Galloway used the Takara 1/100th scale kit to build this A-4M from VMA-214. The dollies, ground crew and pilot figures, bombs, and extra fuel tank all come with the kit.

Tamiya A-4E, Kit Number PA 1003

Issued in 1968, this kit is comprised of forty pieces of gray plastic and a one-piece canopy. Additionally, there are twenty-two pieces of ordnance molded in black. These include two Sidewinders, two Bullpups, two rocket pods, and eighteen bombs in two sizes. Pylons have both triple and multiple ejector racks, so the model can really be loaded down. Three external tanks are also provided. One problem here is that the inboard wing pylons are so close to the landing gear that once the ordnance is loaded, the forward main landing gear doors cannot be shown in the open position. Some relocating of pylons is needed.

Considering that it is now twenty-one years old, it is basically a well engineered kit with no other major fit problems. Modelers will want to fill in the inner walls of the intakes, and plug the center of the fuselage to prevent a see-through effect. Some of the shapes are not right, but it is neither a good nor bad model for this small scale.

The 1/100th scale Revell/Tamiya kit was used to build this A-4E. It was built out-of-the-box by Jim Galloway.

It could best be described as average. The wing section has a bit of a dihedral that should be removed. Decals are provided for VA-86 and the USS Independence, and Australian roundels are included as an option.

Revell A-4E, Kit Number 4014

Revell re-released the Tamiya kit, covered above, in 1984. It is the same as the Tamiya kit except for the box, instructions, and decals, which are for VA-192 from the USS Ticonderoga. With only a change in box art, Revell of Germany also released the same kit with the same decals in the same year.

Ben A-4E, Kit Number A24

This again is a re-release of the Tamiya kit covered above. The new decals sheet provides markings for VMA-121 and the Navy Fighter Weapons School, "TOP GUN." This kit was released in 1987.

1/79th SCALE KIT

Otaki A-4E, Kit Number OA23

Nothing is known about this kit except that it is listed in Shanks guide and is worth about three to six dollars to collectors. We have not seen one.

1/72nd SCALE KITS

Starfix A-4, Kit Number 105

This is another collector's item with a value between three and six dollars. Nothing more is known about it except that it would not be a kit that a serious modeler would consider building with far better kits now available.

IMC (Hawk) A-4E, Kit Number 485

This is one of the oldest 1/72nd scale kits of the Skyhawk, and is molded in translucent plastic. While the basic outline does not look too bad, the details, such as the cockpit, landing gear, and external stores, need a lot of work. An extra left fuselage, intake, and stabilizer are provided as battle-damaged parts. This is more of a collectable kit worth between five and nine dollars, and is not recommended for the serious modeler. Decals provide markings for VA-55 and VMA-332.

Airfix A4D-1, Kit Number 1409

Issued in 1957, this is the only model released of the A4D-1 (A-4A) in 1/72nd scale. (One is expected shortly from Fujimi.) It is quite crude by today's standards, and is better left for the collectors who will pay between four and eight dollars for it. The kit comes in a clear plastic bag rather than a box, so you can see what you get. There is a clear, one-piece canopy and a two-piece stand. The rest of the model is molded in light gray plastic. Two external fuel tanks, which are rather crude, are the only underwing stores. Decals are for VA-34. Let this kit remain a collectable and wait for the A-4A from Fujimi. If it does not show, it would be rather simple to convert the Fujimi A-4B back to an A-4A by removing the refueling probe and filling in the ribs on the rudder.

MPC A4D-1, Kit Number 2-2101

This is simply a re-release of the Airfix kit covered immediately above. MPC did add five ground crew figures which are the best part of the kit. Decals are for VA-153 from the USS Coral Sea.

Hasegawa Skyhawks, Various Versions,
Many Kit Numbers

Hasegawa released and re-released this kit many times as various versions of the Skyhawk including both single and two-seat versions. JS-048 was the earliest release, and like all issues of single-seat versions from Hasegawa, the fuselage is over a quarter of an inch too long. This is quite evident in Kit 1140, which offers the option of building both a single-seater and a TA-4J. The fuselage halves for the two-seat version are shorter than those for the single-seat version! Other than this major flaw, the model is not too bad considering it has been around almost a quarter of a century in its original form. Fuel tanks for the centerline and inboard wing pylons, Bullpup missiles, and bombs are acceptable, but the multiple ejector racks are rather crude. Launch rails are not provided for the Bullpups. Two missiles, which appear to be AIM-7 Sparrows, are included, but don't use them since the A-4 never carried this air-to-air missile. It is possible that Hasegawa was trying to model the Shrike missile, but if so, they missed the mark by a long shot.

The cockpit detailing is almost non-existent, with only

This Blue Angel's Skyhawk was built by the author using Hasegawa's 1/72nd scale kit.

a crude seat and pilot provided. The canopy is one piece, and the canopy rails are molded as part of the fuselage halves. Opening it would be difficult. The speed brakes are separate pieces and are easily opened.

Kit JS048 had decals for VA-12 from the USS Franklin D. Roosevelt, VMA-211, and VA-113 from the USS Enterprise. Kit 048 provided markings for VA-212, from the USS Hancock, VMA-211, and VMA-311. VMA-211 and VMA-311 were also represented in Kit 007.

With kit JS140, Hasegawa replaced the single-seat fuselage halves, which were too long, with fuselage halves for a TA-4F or -J. The length for these was more accurate. A second seat, instrument panel, a new cockpit tub, two control columns, a parabrake housing and boarding ladder were provided. In addition, there was a new two-piece canopy and windscreen for the two-seat version, and an actuating cylinder was provided so that the canopy could be shown in the raised position. The wings and other parts were the same as used on the previously-issued single-seat models. Decals were provided for CNTRA and Blue Angels aircraft.

Both the single and two-seat fuselage and parts were combined into a single box to build one aircraft in kit 1140. Blue Angel markings were provided again. The single-seat version was again reboxed with four other aircraft in kit SK03 during 1984. This was a set of Blue Angels aircraft, and is now a collector's item worth between twenty and forty dollars.

The most recent release of this kit is another rework as a two-seater, with the OA-4M being the subject this time. Kit 613 was released in 1987, and except for the new fuselage and other items peculiar to the OA-4M, the wings, ordnance, and rest of the kit are the same as they have been all along. Decals are for H&MS-12 and H&MS-32.

If any of the Hasegawa kits are to be modeled, we recommend building one of the two-seaters because the single-seat fuselage is too long. Since the slats are molded as one piece with the wing, in most cases they will have to be opened up. But with the new Fujimi TA-4F/-J now available, that kit is the better one to use.

ESCI A-4E, Kit Number 9004

This is basically a "no frills" kit with canopy, speed brakes, flaps, and leading edge slats all molded in the closed position. With the canopy closed, decals for the instrument panel and consoles are all right, and the seat and control column are also acceptable. Since the canopy rails are molded as part of the fuselage halves, a closed canopy is the simplest option. The scribing on the light gray plastic is very petite, and the fit is excellent, making this a simple and quick model to build. Underwing stores include a multiple ejector rack with six bombs for the centerline station, two 300-gallon fuel tanks for the inboard wing pylons, and 2.75-inch rocket pods for the outboard pylons. Wheel wells have excellent detail for a 1/72nd scale model. This model is probably second only to the Fujimi kits for quality, particularly if a simple, easy-to-build kit is desired. Decals are for an aircraft from VA-12 and the USS Franklin D. Roosevelt, and another from VMA-121.

This A-4E in 1/72nd scale was built by Don Harris using the ESCI kit.

Review by Don Harris

ESCI A-4F, Kit Number 9003

This is basically the same as kit 9004 covered above. The only differences are that the plastic is silver instead of gray, an avionics hump for the fuselage has been added (although it is not needed for the adversary aircraft which the decals represent), and the underwing stores have been deleted. Decals are for an aircraft from VF-101's Key West Detachment, and a Marine adversary aircraft from an unidentified squadron.

ERTL/ESCI A-4E, Kit Number 8241

This kit is the same as ESCI kit number 9004 covered above. Even the decals are the same.

AMT/ERTL A-4E, Kit Number 8005

This too is identical, right down to the decals, as kit number 9004 covered above.

ERTL/ESCI A-4E, Kit Number 8244

Again, this kit is the same as number 9004, but it has markings for one Israeli and one Australian aircraft.

Fujimi Skyhawk Series of Kits

Over the past few years, Fujimi has released several series of kits with each series covering a number of variants of a given aircraft. The F-4 Phantom and A-7 Corsair, among others, have already been included, and these kits are among the best in 1/72nd scale available today. Presently, Fujimi is releasing a series of kits of the A-4 Skyhawk, with models of the A-4B, A-4C, A-4E/-F, A-4M, TA-4F/-J, and OA-4M having already been released. An A-4A is expected. By using several basic parts, and by designing their molds so that differing parts could be included as necessary, Fujimi has devised an excellent way to get the most from its molding costs while providing the modeler with a variety of kits rather than reissues of the same kit over and over again like some other kit manufacturers do. We have asked two modelers from IPMS Atlanta to review two of the kits in this series, one a single-seater and one a two-seater, to get their

views on the Fujimi Skyhawks. This is followed by a summary on each of the other kits in the series.

The A-4M, kit number F-22, consists of ninety-four cleanly molded parts in light gray plastic. The outline of the kit appears accurate throughout. Major assemblies include the cockpit and forward fuselage, rear fuselage, and wings. The cockpit is complete with raised detail on the instrument panels and consoles. The ejection seat is a nice representation of the real ESCAPAC seat. However, commonality between this kit and others in the Fujimi series cause the cockpit and forward fuselage fit to be poor. The rear fuselage assembly includes a bulkhead with turbine blades and related intake ducting. This is a nice touch, but not easily visible when the model is finished.

The wings are the only ones in 1/72nd scale with the leading edge slats molded separately, so it is easy to assemble them in the extended position as they usually appear on the ground. Care must be taken during assembly so that the delicate slat tracks are not broken. It is also a simple matter to cut out the flaps and extend them.

Fit of the individual assemblies, except as already noted, is generally quite good. Problems occur when the assemblies are joined together, but much of these problems can be avoided by test fitting and careful assembly.

Five clear parts come with the kit, and these allow the modeler to have separate open and closed canopies. The nose glass for the ARBS and HUD are the other clear parts. All could use a little polishing with Blue Magic Polish. External stores consist of two MERs, two TERs, two Zuni rocket pods, two 300-gallon wing tanks, and a centerline tank. Surprisingly, no bombs are provided for the MERs or TERs, but the Hasegawa weapons set will fix this problem by offering a variety of weapons that can be added to the model.

The only problems with the kit are the fit problems associated with commonality, and this is the price that is paid to get several kits of different variants of the same aircraft. Where the model really shines is in the accuracy and detail departments. Fujimi is now offering 1/72nd scale models with the detail usually found in 1/48th and 1/32nd scale kits. The cockpit, wheel wells, slats, flaps, speed brakes, in fact everything is exquisitely done, and all of the bumps and lumps carried by late A-4Ms are included, usually as separate pieces. Unlike many other "families" of kits, the differences between one variant and another are provided.

Alan Toon built this 1/72nd scale Fujimi model of the A-4M. Like all of the kits in Fujimi's Skyhawk series, this is an excellent model.

Decals offer four options. VMA-214 and VMA-311 are represented by their older more colorful markings, and the same squadrons are also included with low-visibility markings on tactical gray schemes.

The kit is highly recommended. It and the other Skyhawks in the Fujimi series are the best in 1/72nd scale by a wide margin, and are quite likely the best we will ever see.

Review by Alan Toon

The OA-4M, kit F-23 in the Fujimi series, features all scribed panel lines with the option to cut away the flaps and drop them. The instrument panel and consoles have raised detailing with optional decals to use instead if the modeler so desires. Two canopies are provided that include a single-piece version for the closed position and a two-piece version if the modeler wants to show off his detailing work inside the cockpit.

Fujimi's series of A-4 Skyhawk models is clearly the best in 1/72nd scale. This OA-4M is only one of the kits available in this series, and the finished product is a truly excellent model. It was built by Don Bierce.

During construction some minor fit problems were encountered in the engine intake and intake-to-fuselage joint. The problem was solved with a little filling with putty. Care is also required to match part numbers on the trees to the instructor's part numbers. Some parts called for in the assembly instructions are not to be found on the trees, while some parts on the trees are not shown on the instructions.

There was a major problem in that the rocket launch pods did not mate properly to the outboard pylons. Both had male connections which were filed off, then the TER was removed so that the pod could be attached directly to the pylon.

Decals are included for six aircraft, four from H&MS-12 and two from H&MS-32. All are in the tactical, low-visibility scheme which is the only scheme in which the OA-4M has been painted.

Review by Don Bierce

Other kits released so far in the Fujimi series are as follows:

The A-4B is the subject of kit F-27, and construction is basically the same as with the A-4M described above. The same sub-assemblies are used, but with appropriate parts for the A-4B, and the same option of a single-piece (closed) or two-piece (open) canopy is provided. The instructions show the use of three external tanks as the underwing stores, and there is the option of substituting Bullpups on the wing pylons. As with all of the Fujimi 1/72nd scale Skyhawks, MERs and TERs are included on the trees. Since they are not needed for this kit, save them for use on other models since they are very nicely done. Decals include options for an A-4B from VA-152 and the USS Forrestal, and an A-4Q in Argentine Navy Markings.

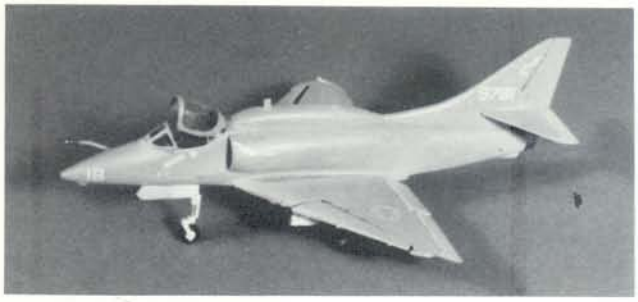
Kit F-26 is an A-4C, and is molded in white plastic. It has all of the features described above. The instructions recommend the same ordnance load as for the A-4B, but many options exist if the modeler uses stores from the parts box or a Hasegawa weapons kit. Five different decal options are provided with this kit. Perhaps the most interesting A-4C is from VA-76 and the USS Independence. This is 149645, which was flown by LCDR Swartz when he scored the only MiG kill ever made by an A-4. Other options include aircraft from VA-12 and the USS Shangri-La, one from VA-144 with a NK tail code from the USS Constellation, a second from VA-144, but with a NH tail code from the USS Kitty Hawk, and an A-4C from VA-15 and the USS Forrestal.

Both the A-4E and A-4F are included in kit F-24. The avionics hump is included as an option. Decals include an A-4E and an A-4F from the Navy Fighter Weapons School, with the A-4F being camouflaged to represent a MiG-17. Another A-4E is included from VC-1, and the last set of markings is for an A-4G in Australian markings.

The TA-4F and -J two-seaters are included in kit F-25. Basically, the kit is the same except for the longer forward fuselage section and the parts necessary to build the two cockpits. The two-place canopy is provided, both as a single-piece unit for displaying it in the closed position, and in two pieces so it can be built open. Decals are provided for the commander's TA-4J from Light Attack Wing One (VA-45), another commander's TA-4J for VC-1, and a third commander's aircraft, this time a TA-4F, from H&MS-12. Rounding out the decal options is a TA-4H of the Israeli Air Force.

Matchbox A-4M, Kit Number PK 29

This kit is not one for the serious modeler, nor is it one that a collector would be interested in. Quite frankly, it has nothing to recommend it, and is easily the worst of the presently-available Skyhawk kits in 1/72nd scale. Panel lines are a combination of raised and recessed scribing, and do not accurately reflect what is on the real aircraft. This lack of accuracy extends on to the parts themselves. For example, rather than having split flaps and spoilers, the model has regular one-piece (top and bottom) flaps.



The Matchbox 1/72nd scale kit was used by junior modeler Robert Starnes to build this A-4M. As Robert points out in his review, this is a poor kit, and not recommended for the serious scale modeler.

The plastic is very brittle and tends to crack during filling and sanding of seams. The cockpit has only a seat which does not resemble any type of ejection seat ever used in an aircraft. There is no instrument panel, consoles, control column, or any other cockpit detailing. There is not even a cockpit floor. The lack of detailing extends to other areas such as the landing gear wells. The landing gear doors are molded in the in-flight position and must be cut apart if the aircraft is to be built with the landing gear extended. The only weapons provided are two Bullpup A missiles which are totally wrong for the A-4M.

The canopy is molded in heavy clear plastic and is too large to give a proper fit to the fuselage. The instruction sheet is a picture affair with clear step-by-step instructions printed in six different languages! A three-piece clear stand is provided. Decals in the first issue are for VMA-331 and VMA-324. In a second issue with the same kit number, but different box art, the VMA-331 markings were deleted and replaced with those for an Israeli A-4N. VMA-324's markings remained. Suffice it to say that if you want to build an A-4M in 1/72nd scale, there are far better ways to go, the best of which is the Fujimi kit.

Review by Robert Starnes

Otaki A-4E, Kit Number OA23

Issued in 1968, this kit is no longer generally available, and is considered a collector's item worth between three and six dollars. It had a one-piece clear canopy and twenty-eight pieces in blue/green plastic. We do not want to say that this kit is a dog, but you may hear some barking when you open the box! It is definitely for collectors and not for builders. Decals were for no particular unit, and included **MARINES** and other general markings.

Testors A-4M, Kit Number 271

This kit was released by Testors as an "A-4 Aggressor" to take advantage of the hype from the movie TOP GUN. Additional hype is provided in the kit in the form of ordering information for patches and a cap with a phoney TOP GUN insignia. Unfortunately, what is in the box is not what the box art claims it to be. First of all "aggressor" is an Air Force term. A Navy A-4 would be an "adversary."

Now that does not really effect what is in the box, but the fact is that the model inside is an A-4M, which is not used by the Navy as an adversary aircraft. Testors tries to skate by this by showing how to remove the antenna fairing from on top of the vertical tail and round it off to look like an A-4E for which they provide decals. Further, the A-4E adversary aircraft for which they provide decals, A-4E, 151095, does not have the avionics hump on the fuselage as Testors shows it on the drawings. The hump is molded as part of the fuselage halves rather than having it as an option, so removing it would not be realistic with other better kits available where this option does exist. Even the instructions say that changing the tail only reflects an early A-4M, and the "aggressor" version is only referred to on the box and in the instructions as an "A-4" with no letter suffix. Unfortunately, that is not all there is to it, folks. The kit only provides the larger A-4M canopy, so you simply cannot build any adversary aircraft from this kit. Markings are provided for the last A-4M built in VX-5's markings, and they are the only ones that can be used if the model is built out of the box.

Like the ESCI kit, this is a very basic kit with everything (canopy, slats, flaps, and speed brakes) molded in the closed position. Stores are limited to only a centerline tank and rockets for the inboard pylons. Nothing is provided to go on the outboard pylons. This kit could be built into an acceptable, but basic, A-4M, but if you want to build an adversary A-4, forget what the box says and use the Fujimi or ESCI kit instead.

Testors/Italeri OA-4M, Kit Number 637

This is basically the same as the Testors kit reviewed immediately above, except that new fuselage halves change the version from an A-4M to a two-seat OA-4M. Again, it is a basic kit with everything in the closed position. The cockpit detailing is very sparse, but is sufficient with the one-piece canopy in the closed position. Two wing tanks are provided which are fine, but the other underwing stores are two Shrike missiles which would not be carried on an OA-4M. Save them for another model, and replace them with some 5-inch rocket pods. Scalemaster decals are provided for two aircraft, one from H&MS-12 and the other from H&MS-13.

Central A4D, Kit Number CE 201

Released in 1969, this is another kit that falls into the collectors category, and not the builders category. It is worth between four and eight dollars to collectors. Included in the kit were twenty-five pieces of gray plastic with fairly heavy panel lines. There was no detailing to speak of, and the model could best be described as being rather crude. Decals were provided for an aircraft from VA-34.

1/48th SCALE KITS

Revell A4D-1, Kit Number H232

This kit was issued in 1956, making it almost as old as the Skyhawk itself. It actually scales out to be 1/51st scale, but is close enough to 1/48th to be included here. Considering that it is over thirty years old, it is not a bad kit, but it is not up to the present-day releases by any stretch of the imagination. This first release of it had no stores except for a centerline fuel tank. To that a ball was attached that fit into Revell's famous "Revelling" stand of the fifties. The model represents an A4D-1 with the skinned rudder and no refueling probe. It is void of any detailing. There is none in the wheel wells, and into the cockpit goes a single piece with floor, seat, and pilot all molded in place. The plastic is a high gloss gray with the engraving mostly limited to indicating where the decals go. The landing gear is rather crude by today's standards. Decals are for VA-115. If you are going to build this model, build it gear-up and mount it on the stand. It will pass for a desk model but that is about it. It is a popular collector's model bringing between twelve and seventeen dollars today.

Revell A4D-1, Kit Number 299

This is basically the same as kit 232 covered immediately above, but thirty-three new parts have been added that include three crew members, two Bullpup missiles, incorrect pylons, and two dollies for the missiles. The problem is that the A4D-1, which the kit represents, was not compatible with the Bullpup missile. Other improvements in this kit are a softer gray plastic that has more panel lines indicating access panels, etc., and only the national insignia is now inscribed when it comes to showing where the decals go. There is no "Revelling" stand in this issue. Markings are for VA-113. The kit has a value of between fifteen and twenty dollars to the collector.

Revell A4D-1, Kit Number H179

This is an exact copy of kit H299 covered immediately above. It was issued in a new box with the frameable famous artist painting. Decals are for VA-66. This issue is worth between eight and twelve dollars to collectors.

ESCI/Scalecraft A-4E/-F, Kit Number SC-4021

This kit is well engineered and basic construction is accomplished easily. Even a beginner could handle it. But many of the details, such as the slats and underwing stores, require a delicate touch, so some experience is suggested before attempting this model. Overall fit is quite good, and little filling and sanding is required. The excellent instruction sheet is clear, and contains helpful hints to aid in assembly and painting.

Overall shape is accurate for the most part. Surface detailing consists of fine raised lines on the wings, horizontal stabilizers, and avionics hump. Control surface lines are scribed, as are the panel lines on the fuselage and vertical stabilizer. Fuselage scribing is slightly heavy, and this proves to be an advantage since the fuselage molding has a rough surface texture that must be removed by sanding and polishing. There are also noticeable sink marks on the upper surface of the spoilers that need to be filled. Speed brakes, spoilers, and flaps are all molded in the closed position. The leading edge slats are

This A-4M was built from the 1/48th scale ESCI kit by James Whitley.

well done, and feature petite fences and vortex generators. The slat guides or rails are molded separately, and this makes painting easier. However, great care must be taken when attaching them after painting. Tiny guides are molded on the bottom of the slats to aid in positioning them. The rails are then slipped into slots in the leading edge of the wing.

On the underside, the landing gear is very realistic. The lug nuts are nicely molded on the wheels, and the main gear wheels have the brake detailing. The shocks, struts, and oleo's all look good. Although the gear looks fragile, it is firmly mounted and more than strong enough for the model. A clear landing light is included, and the wells have detailing in the form of hydraulic lines and fittings.

A good complement of under-wing stores is included. The pylons are well detailed and the outboard pylons have Aero 33 adapters attached to carry LAU-3/19 rocket pods. The inboard pylons carry 300-gallon fuel tanks, and a nice MER with six 500-pound bombs is included for the centerline station. However, the edges on the small bomb attach points on the MER are straight, and should be trimmed to match the contour of the bombs. The lack of alignment pins necessitates care to insure that the bombs are lined up properly.

The cockpit is typical of most ESCI kits, and is lacking detail. A console assembly, rear bulkhead, a rather inaccurate representation of an ESCAPAC ejection seat, stick, and instrument panel constitute the cockpit interior. This assembly is mounted on top of the nose gear well. Instruments and switches are represented by decals. There is no throttle (or HUD for the A-4M version). The super detail artist will have a clean slate from which to start. However, if the two-piece canopy is built in the closed position, the kit-supplied cockpit will suffice for the casual modeler.

Decals are for two A-4Es from VA-192, one from the USS Ticonderoga, CVA-14, in 1967, and the second from NAS Lemoore in 1968. A third option is an A-4E from VF-43 at NAS Oceana, and a fourth is an A-4G from the Australian Navy.

ESCI/Scalecraft A-4M/-N, Kit Number 4016

This is a re-release of the ESCI A-4E/-F covered immediately above. The vertical tail has been squared off to represent the original production configuration of the A-4M, and Israeli DEFA 30mm cannon have also been added, as has a parabrake housing. However, the canopy is still the A-4E/-F style, so it is completely wrong for the A-4M. Correcting it would be a major task. The model also lacks the antenna bumps, bulges, and fairings usually seen on the A-4M, so the kit does not build up into an accurate -M straight from the box. Decals are for VMA-214, VMA-311, and an Israeli A-4N. The ESCI kit is basically a good one, but we recommend using it to build an A-4E or -F and not an A-4M.

Kit reviews of the ESCI kits by Jim Whitley

AMT/ERTL A-4E/-F, Kit Number 8862

This is a reissue of the ESCI/Scalecraft A-4E/-F covered above. Even the decals are the same.

Fujimi A-4E, Kit Number FJ1

Originally released in 1968, this kit is one of the oldest in 1/48th scale. (It is actually more like 1/50th scale.) Although a respectable kit for its day, it is not up to the standards of the Monogram or ESCI offerings. Included in the kit was a one-piece canopy and fifty-eight pieces in gray plastic. No avionics hump was included, so only an -E before retrofit of this feature could be built unless the hump was vacu-formed or otherwise built from scratch. Flaps, slats, speed brakes, and canopy were all molded in the closed position. Decals were for VA-155 and the USS Coral Sea, VMA-211, VA-212 and the USS Hancock, and an unidentified unit from the USS Enterprise.

Both the single-seat and two-seat 1/50th scale Fujimi models are pictured together in this photograph. They were built by the author.

Fujimi A-4E, Kit Number 5A6

This is a reissue of kit FJ1 above. Only the decals are different, and they feature the markings of VMA-121, VMA-311, VMA-211, and VA-212 from the USS Hancock.

Fujimi TA-4F, Kit Number 5A12

Fujimi reworked its A-4E into a TA-4F by providing two new fuselage halves, parts for the second cockpit, and the two-place canopy/windscreen. Otherwise even the ordnance is the same. The shape of the fuselage is not quite right, and it should be kept in mind that the Fujimi models are 1/50th scale, not 1/48th. However, this is the only way to build a TA-4F from the box in anything that approximates 1/48th scale. The alternative is to use the

War Eagle conversion kit and the Monogram OA-4M, and we recommend this option to the serious scale modeler. Decals are provided for VF-126 and H&MS-11. In a second issue of the same kit with the same number, the decals were provided for an Australian aircraft in addition to the two mentioned above.

UPC A-4A, Kit Number 5070

Here is another release of the original Lindberg kit under the UPC label. Decals are colorful, but fictitious. The value to collectors is from four to eight dollars.

Starfix A-4, Kit Number 107

This kit is listed in Shanks guide, but we cannot find anyone who has ever seen one. No other information is available, and in any event, it would only be a collector's item worth between four and eight dollars. It would not be considered as an option for a serious modeler.

Monogram A-4E, Kit Number 5406

If you want to build any variant of the A-4 in 1/48th scale, Monogram's A-4E and OA-4M (see below) are the best kits to start with. A review of the basic A-4E kit is as follows:

The Monogram A-4E kit builds up nicely with overall dimensions and shapes being very accurate when scaled out and measured. Fit is good for the most part, but some work will be needed where the wing joins the fuselage. The best way to remedy this is to expand the fuselage with excess sprue or thick sheet plastic. Since the width varies, it is necessary to use different lengths of plastic to widen the bottom of the fuselage at different locations along the wing joint.

Monogram's 1/48th scale model is the best Skyhawk in this popular scale. ***LADY JESSIE*** *was built by Joe Driver, Jr. and the finished model is really outstanding.*

The cockpit is very nice, but the ejection seat is molded into the cockpit tub. A super-detailer may want to cut this away and add a new seat, but detailing the kit seat out a bit should satisfy most modelers. The control column needs to be shortened a bit to get the correct height. The landing gear is nice, but more detailing could be added. Wheel wells have details molded in, but the super-detailer again has room to work if desired.

Unlike many of the other kits, this model offers lots of options. The flaps can be positioned up or down, as can the leading edge slats. The canopy and speed brakes can be positioned in both the open and closed positions. Either way, the fit is good.

For the most part, surface scribing is the fine raised variety, and is quite accurate. External stores include underwing fuel tanks, an MER with 500-pound bombs for the centerline, and Shrike missiles for the outboard pylons. Decals are provided for a Marine aircraft from VMAT-102 and a Navy Skyhawk from VA-144 and the USS Bon Homme Richard.

Review by Joe Driver, Jr.

Monogram A-4, Kit Number 5422

Monogram re-released its A-4E kit covered above in blue plastic and without weapons to be built in a Blue Angels markings. Unfortunately, they did not add the parabrake housing or fairing for the self-contained boarding ladder. The yellow on the decal sheet for the Blue Angels' markings is too light.

Monogram A-4 Aggressor, Kit Number 5411

Like many others, Monogram got into the act of issuing A-4s from the Navy Fighter Weapons School, "TOP GUN," and incorrectly used the term "aggressor" instead of "adversary" to refer to the aircraft's role. It is the same as the other two kits except that decals are for an A-4E or A-4F from NFWS.

Monogram OA-4M, Kit Number 5436

With this kit, Monogram substituted fuselage and cockpit parts to the wings of its previous kits to come up with the OA-4M two-seat version. This choice is surprising since a good TA-4F/-J does not exist in basic kit form in 1/48th scale. The TA-4F and -J have carried some of the most colorful markings available, and have been used by almost every foreign nation that has purchased Skyhawks. Yet the OA-4M has carried only the low-visibility gray scheme, and only twenty-three of them have ever been built from existing TA-4F airframes. Monogram is not alone in this, since a number of OA-4M kits exist, and one can only wonder why manufacturers find this rather rare variant so appealing. It is a good kit, and Monogram has provided all of the necessary parts for this two-seat version to include canopy and windscreen, a second cockpit, and a modified avionics hump. The kit can also be combined with the War Eagle TA-4F/-J conversion kit (see below) and used to build a nice TA-4F/-J. Hopefully though, Monogram will change the two fuselage halves and reissue the kit as a TA-4F/-J in the near future.

Fujimi/Testors A-4E, Kit Number 332

The Testors Corporation reissued the Fujimi A-4E under its own label without any real changes. Markings are for aircraft from VC-2, COMFIT Wing One, and the Navy Fighter Weapons School.

Allyn A4D, Kit Number 916

This three-piece desk model was released in 1954, and is one of the most sought-after collectable kits. It brings eighty dollars and up from collectors. Decals consisted only of national insignia, two **NAVY**'s and a BuNo of

124587. This is not for the serious modeler, but is a real collector's item.

Lindberg XA4D-1, Kit Number 555

Although this kit was not released until 1962, it represents the XA4D-1. It consists of forty-three pieces of white plastic, a two-piece clear canopy, and a three-piece clear stand. A yellow tow tractor was also provided. It had too many gimmicks, and could be built as the prototype only. Even then, a real effort by the modeler would be necessary. Suffice it to say that this is a collector's item only, and not for the serious modeler. It is worth between twelve and seventeen dollars on collector's tables. A collector's card was on the back of the box, but cutting this out lowers the value of the unbuilt kit. Decals included four national insignias, three **NAVY**s, and some colorful stripes.

Lindberg A4D, Kit Number 2333

This is a reissue of kit 555 covered above. It is molded in blue plastic and does not have the tow tractor. Issued in 1982, the kit has decals for the Blue Angels, but only builds up into the prototype aircraft. It in no way represents a Blue Angel A-4F, and should not be considered by the serious modeler. The value to collectors is a mere two to four dollars.

Minicraft A-4 Kits for 1989

Minicraft has announced plans to release both single and two-seat versions of the Skyhawk in 1/48th scale. Expected release dates are in early 1989. Nothing further is known about these kits at this time.

1/32nd SCALE KITS

Hasegawa A-4E/-F, Kit Number 109

This kit, along with its reissues as both single and two-seat versions of the Skyhawk, is the only kit available of the A-4 in this large scale. However, it is an excellent kit, and can be built into a very nice model. While not as well detailed as some of the more recent 1/32nd scale kits, it is still well done, and offers the super-detailer a lot of room to work.

Molded in light gray plastic, the kit offers lots of options. The canopy, speed brakes, and leading edge slats can be assembled in the open or closed (extended or retracted) positions. Both the straight and bent refueling probes are provided. Clear parts include a two-piece canopy and windscreen, gunsight, and various lights. Surface scribing is raised, and is very fine and accurate. Fit is generally good, but a few places will require a minimum of filling and sanding.

The cockpit has all the basics. Instruments and switches on the instrument panel and consoles are provided in the form of raised moldings on each piece. But some extra work will be needed here, and additions in the form of panels for warning lights and other details will help. The seat is a decent basis from which to start, but like the rest of the cockpit, should have details added. It is best to leave out the pilot figure.

Hasegawa produces the only model of the Skyhawk in 1/32nd scale, but it is an excellent kit. It has been released several times in both the single and two-seat versions. The author used one of the earliest releases to build this model of VA-192's CAG aircraft from the USS Oriskany.

External stores include a pair of 300-gallon external tanks for the inboard wing pylons, and a multiple ejector rack with six bombs is provided for the centerline station. Two Bullpup missiles with rails are to be fitted on the outboard wing stations. Decals are for an A-4E from VC-1.

Any modeler wanting to build this kit should take the time to add detailing and do it right. It can be a truly excellent model, and a colorful addition to any collection.

Hasegawa A-4, Kit Number 103

This is the same kit as number 109 described immediately above. It even includes all of the ordnance, but is molded in blue plastic so as to be built as a Blue Angels' aircraft. Surprisingly, Hasegawa did not make any necessary changes so that a Blue Angels' aircraft could accurately be built. There is no parabrake housing, and no boarding ladder fairing. Except for the first page that gives a history of the Skyhawk in Blue Angels service, and the page that shows where the Blue Angels' markings are to be located, even the instructions are the same. The kit offers all options, such as bent or straight refueling probe, ECM antennas, and all weapons. Obviously, the Blue Angels did not carry ECM antennas or weapons. With just a little effort, Hasegawa could have made this a much better kit, and considering their excellent reputation, it is hard to believe that they failed to do so.

Otherwise, this is the same excellent kit as covered above. Build it as a regular A-4, or be prepared to scratch-build a parabrake housing and boarding ladder fairing. Save the weapons for another model.

Hasegawa TA-4J, Kit Number 1163

Just as it did with its 1/72nd scale Skyhawks, Hasegawa took their A-4E kit in 1/32nd scale and turned it into a TA-4J two-seat version. Molded in white plastic, this kit provides new fuselage halves for the longer TA-4J, as well as a new canopy and windscreen and parts to build

the second cockpit. Missing from the original kit are the ECM antennas, guns, weapons, and outer pylons. By using these parts from a single seat kit, a TA-4F could easily be built from this kit. Decals are for the commander's aircraft from Training Wing Three which features a colorful banner painted on each side of the fuselage.

Hasegawa TA-4J, Kit Number S24

This is another issue of the TA-4J kit covered immediately above. It is identical except for the box and the decals. In this kit the decals are for the commander's aircraft from VF-126 with Bi-centennial markings.

Hasegawa OA-4M, Kit Number CH6

Hasegawa took its earlier TA-4J and converted it again into an OA-4M that is included in its "High Tech" series with an even higher price tag. Some cutting and conversion work must be done by the modeler, and this is absurd. After paying an outrageous price, the modeler has a right to expect a kit that is ready to build without him doing a conversion job. Only the most dedicated (and wealthy) modeler, who just has to have a 1/32nd scale OA-4M, would be interested in this kit. There is no argument that this kit can be built into a truly outstanding and detailed model, but most modelers will find Hasegawa's excellent and regular A-4 Skyhawk kits more than adequate at a far more reasonable price.

CONVERSION KITS

Esoteric Models A-4A/-B Conversion Kit

This small kit consists of white metal parts to convert the ESCI A-4E/-F to an earlier A-4A or -B. Included is a nose piece, two flush intakes, and a skinned rudder for the A-4A version. The refueling probe from the ESCI kit is used with only the A-4B. This was a useful kit to build the earlier A-4 variants until the Fujimi 1/72nd scale kits came along, but with these new kits now available, the value of this kit is lessened. However, it might be useful to modelers with several old ESCI kits (or derivatives) still on the shelf. More information can be obtained by writing to Esoteric Models, Hangar 3a Main Road, East Hagborne, Didcot, Oxon, OX11 9LJ, England.

Esoteric Models A-4C Conversion Kit

As with the Esoteric Models conversion kit covered above, this white metal kit offers a nose section and two intakes to convert the ESCI 1/72nd scale kit to an A-4C. A 1/72nd scale avionics hump from a Hasegawa or Fujimi kit could be added to build an A-4L. However, the Fujimi model now available for the A-4C makes this conversion kit unnecessary unless the modeler simply wants to do some conversion work.

War Eagle A-4A/-B Conversion Kit

War Eagle has produced this conversion kit in 1/48th scale to go with the Monogram A-4E kit. It provides the fuselage halves to build either an A-4A or A-4B. To build the A-4A, the modeler uses the skinned, original rudder as molded on the tail of the War Eagle vacu-formed fuselage halves. No in-flight refueling probe is used. To build the A-4B, the rudder is cut away, and the ribbed rudder from the Monogram kit is substituted in its place. The in-flight refueling probe is also used from the Monogram kit. Information about War Eagle kits can be obtained by sending a SASE with your inquiry to P.O. Box 255, New Baltimore, Michigan 48047.

War Eagle A-4C/-L Conversion Kit

As with the War Eagle A-4A/-B kit, the vacu-formed kit also goes with the Monogram 1/48th scale A-4E model. The only major difference between the A-4C and A-4L is the use of the avionics hump from the Monogram kit for the A-4L. The A-4C did not have the hump. ECM antenna spikes should be removed for the A-4C model in most cases. Each of the War Eagle conversion kits for the Skyhawk comes with excellent instructions.

War Eagle has released several vacu-formed kits to allow the modeler to build various versions of the Skyhawk using the Monogram kit in 1/48th scale. This is an A-4C built by Gil Hodges using one of these kits.

War Eagle TA-4F/-J Conversion Kit

Also in 1/48th scale, this kit provides two vacu-formed halves to be used with the Monogram OA-4M. The reason that this kit uses the OA-4M instead of the A-4E is that two cockpits and the larger canopy and square windscreen are required. This is a welcomed conversion kit even though the Fujimi TA-4J exists. The Fujimi fuselage is too pointed and narrow, and is not in true 1/48th scale. This conversion kit is the better way to build a TA-4F or -J in this popular modeling scale.

Flight Forms A-4P Conversion Kit

This 1/48th scale conversion kit is designed to go with the Monogram kit to build an Argentine A-4P. Both the A-4P converted from the A-4B, and the one converted from the A-4C with the longer nose, can be built. Both noses are provided in the form of clear plastic pieces. A third clear plastic piece is included, and is for a small, teardrop-shaped avionics pack that mounts on top of the fuselage. This should not be confused with the large avionics hump used on other Skyhawks. Four pages of instructions are provided, and three of these are drawings. They are quite good except for the explanation on

how to convert the intakes in the Monogram kit to the flush type. There are a couple of technical errors in the instructions as they pertain to aircraft designations, but these are of no real consequence. A decal sheet for Argentine markings is provided from Scalemaster. Modelers who are interested in Skyhawks that were used in the battle for the Falkland Islands will find this kit interesting. More information can be obtained by sending your questions and a SASE to: Flight Forms, 7415 N.W. 75th Street, Tamarac, Florida 33321.

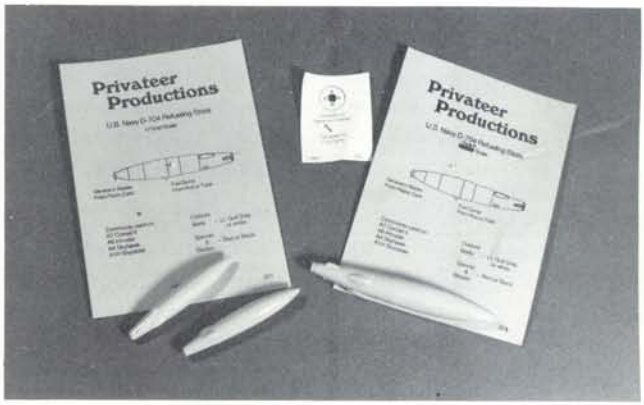
SKYHAWK ACCESSORIES

Model Technologies A-4 Boarding Ladder, Kit Number MT0077

Using photo-etched metal, Model Technologies has produced a nice boarding ladder to use with 1/72nd scale Skyhawk kits. All that is required to construct the kit is a little bending of the metal and the attachment of the wheels. Once it is painted, it will be a nice addition to any Skyhawk model, and is much better than the ladder supplied in the Hasegawa Blue Angel A-4F/TA-4J kit. Since Model Technologies often produces its kits in both 1/72nd and 1/48th scale, it is possible that a 1/48th scale ladder has also been produced, but if so, we have not seen it nor are we aware of it.

Privateer Productions D-704 Refueling Store

Privateer Productions has released the D-704 refueling store in both 1/72nd and 1/48th scales. This is a nice addition, and can be used with the A-4 Skyhawk and several other Navy aircraft to include the A-6, A-7, and A-1H. Kit 001 is in 1/72nd scale, and contains two stores. Kit 002 is in 1/48th scale and only has one store. Generator blades must be fashioned from plastic card, and a fuel dump must be added from a rod, sprue, or tube, but otherwise the store is ready to paint and attach to the model.



Privateer Productions has released a D-704 refueling store as used on the A-4 and other aircraft. Kit 001 is in 1/72nd scale, and provides two stores (left). Kit 002 is in 1/48th scale, and provides a single store.

Note: Detail & Scale welcomes any sample of conversion kits and accessories made for the modeler by many of the "cottage" industries. We will be happy to comment on these in the Modelers Section of any book for with they are appropriate. Samples or lists should be sent to Detail & Scale, Inc., 256 Commerce Drive, Suite 432, Peachtree City, Georgia 30269.

DECAL LISTING

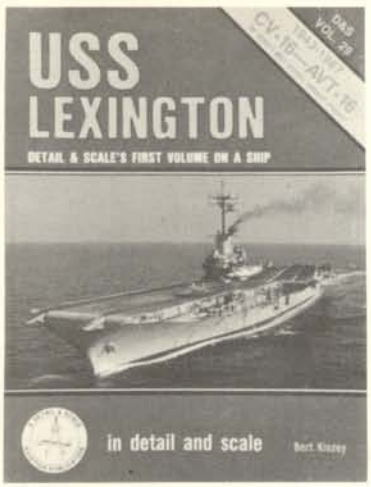
Manufacturer and Sheet Number	Scale	Type	BuNo	Unit	Tail Code	Scheme	Remarks
ESCI 78	1/72	A-4E	151073	VA-155	NL	Gray/White	CAG aircraft, USS Constellation
		A-4N	724	Israeli A.F.	--	Green, brown & tan camo.	
		A-4G	154904	805 Sqn RAN	--	Gray/White	HMAS Melbourne, Royal Australian Navy
		A-4K	NZ6202	75 Sqn RNZAF	--	Green & Tan Camouflage	Royal New Zealand Air Force
		A-4C	148510	VA-113	NH	Gray/White	USS Kitty Hawk
		A-4C	145140	VA-192	NM	Gray/White	USS Bon Homme Richard
Microscale 72-0077	1/72	A-4B	154892	VA-32	AC	Gray/White	USS Saratoga, Incorrect BuNo, Should be 144892
		A-4C	147681	VMA-22	YV	Gray/White	USS Hornet
		A-4C	145132	VA-112	AH	Gray/White	USS Ticonderoga
		A-4B	144954	VA-152	AA	Gray/White	USS Forrestal
		A-4C	147798	VA-95	AB	Gray/White	USS John F. Kennedy
Microscale 72-0078	1/72	A-4C	148516	VA-64	AG	Gray/White	USS Independence
		A-4C	148586	VSF-1	AG	Gray/White	USS Independence
		A-4C	148467	VMA-224	WK	Gray/White	7th Fleet marking on intake
		A-4E	152099	VMA-121	VK	Gray/White	
		A-4E	152032	VMA-223	WP	Gray/White	
Microscale 72-106	1/72	A-4E	218	Israeli A.F.	--	Green, yellow & tan camo.	Inadequate painting instructions

Manufacturer and Sheet Number	Scale	Type	BuNo	Unit	Tail Code	Scheme	Remarks
Microscale 72-114	1/72	A-4E	151112	VC-1	UA	Gray/White	
		A-4F	154976	VA-93	NF	Gray/White	USS Bon Homme Richard
		A-4F	154178	VA-144	NF	Gray/White	USS Bon Homme Richard CAG aircraft
		A-4L	147825	VA-203	AF	Gray/White	No necessary instructions on how to convert a model to an A-4L
		A-4E	159651	VMA-311	WL	Gray/White	Commander's aircraft
Microscale 72-138	1/72	A-4F	Provides markings for Blue Angels aircraft 1-4, but no pilot's names.				
Microscale 72-170	1/72	A-4E	148609	VC-2	JE	Gray/White	Commander's aircraft, COMFIT Wing One
		A-4E	151118	VF-43	AD	Gray & Blue Camouflage	Inadequate painting instructions
		A-4L	148505	VMA-112	MB	Gray/White	No necessary instructions on how to convert a model to an A-4L
		A-4E	149661	VMA-211	CF	Gray/White	
Microscale 72-210	1/72	TA-4F	154315	RCVW-4 & VA-45	AD	Gray/White	Commander's aircraft
		TA-4J	153674	VX-4	XF	Gray/White	Sharksmouth on nose
		TA-4F	153468	VF-126	NJ	OA White	Commander's aircraft for Readiness Attack Carrier Air Wing Twelve
		TA-4J	153663	VMAT-102	SC	OA White	
Microscale 72-211	1/72	TA-4J	158130	VT-7	--	OA White	Bicentennial markings
		TA-4J	153478	VT-24	C	OA White	Commander's aircraft for Training Wing Three
		TA-4F	153506	H&MS-11	TM	Gray/White	Unusual gray/white paint. Commander's aircraft
		TA-4J	158500	VT-21	--	OA White	Commander's aircraft
Microscale 72-227	1/72	A-4M	158148	NWEF	--	Black/White	Unusual one of a kind paint scheme. Inadequate instructions on how to paint it
		A-4M	158168	VMA-311	WL	Gray/White	
		A-4M	159474	VMA-214	WE	Gray/White	
		A-4M	160264	None	--	Gray/White	Delivery markings for last A-4 built. Seven flags on fuselage
		A-4N	158726	Israeli A.F.	--	Green, sand, & tan camouflage	Skyhawk II on fuselage sides No Israeli markings
Microscale 72-315	1/72	A-4F	155022	VA-164	NP	Gray/White	LADY JESSIE from USS Hancock
		A-4F	154998	VA-192	NM	Gray/White	CAG aircraft
		A-4F	154970	VA-22	NE	Gray/White	
Microscale 72-318	1/72	A-4F	154190	VA-22	NF	Gray/White	CAG aircraft, USS Bon Homme Richard
Microscale 72-319	1/72	A-4E	152008	VA-45 DET-1	AU	Gray/White	CAG aircraft, USS Intrepid
		A-4F	154998	VA-192	NM	Gray/White	CAG aircraft, USS Oriskany
		A-4F	154201	VA-23	NM	Gray/White	CAG aircraft, USS Ticonderoga
		A-4E	150044	VA-152	AJ	Gray/White	USS Shangri-La
Microscale 72-344	1/72	A-4N	318	Israeli A.F.	--	Green, brown & tan camo.	Very poor instructions
Microscale 72-352	1/72	A-4P	C-228	Argentine	--	Brown & green camouflage	Very poor instructions. Alternate aircraft numbers C-233 and C-235 also provided
Microscale 72-427	1/72	A-4E	152098	VC-5	UE	Gray/White	
		A-4F	155009	VA-55	NP	Gray/White	USS Hancock
		A-4F	155031	VMA-223	WP	Gray/White	
Microscale 72-430	1/72	A-4M	159491	VMAT-102	SC	Gray/White	
		A-4M	158183	VMA-331	VL	Gray/White	
Microscale 72-436	1/72	A-4G	154910	805 Group	--	Gray/White	Alternate numbers are provided for six other A-4Gs of the Australian Navy's 805 Group
		TA-4G	154647	805 Group	--	Gray/White	
		A-4G	155061	VC-124	--	Blue gray & light blue camo.	
Microscale 72-437	1/72	A-4S	79/679	Singapore	--	Dark green, tan & med. green camouflage	
		TA-4S	51/651	Singapore	--	Dark green, tan & med. green camouflage	Requires a major conversion
		A-4K	NZ6210	75th Sqn.	--	Dark green, tan & med. green camouflage	New Zealand
		TA-4K	NZ6251	75th Sqn.	--	Dark green, tan & med. green camouflage	New Zealand
Microscale 72-459	1/72	A-4P	C-239	V Brigada Aerea	--	Olive & gray green camo.	Argentine aircraft from the Falklands War
		A-4P	C-250	V Brigada	--	Olive & gray green camo.	Argentine aircraft from the Falklands War

Manufacturer and Sheet Number	Scale	Type	BuNo	Unit	Tail Code	Scheme	Remarks
Microscale 72-531	1/72	A-4A	139949	VA-93	NG	Gray/White	
		A-4C	148456	VA-72	--	Gray/White	USS Independence
		A-4B	142520	VA-22 Det R	NS	Gray/White	USS Kearsarge
Microscale 72-538	1/72	TA-4J	158085	VT-22	--	Special	Special 75th Anniversary of Naval Aviation paint scheme
		TA-4J	158723	VT-24	C	Special	Blue, gold & white 75th Anniversary of Naval Aviation paint scheme
Microscale 72-539	1/72	TA-4J	155103	VT-25	--	Special	Special 75th Anniversary of Naval Aviation paint scheme
		TA-4J	158473	---	--	Special	Special 75th Anniversary of Naval Aviation paint scheme
Microscale 48-3	1/48	TA-4J	155100	COMTRA Wing II	--	OA White	Commander's aircraft
		TA-4J	152871	VA-43	AD	OA White	
		TA-4J	154632	VF-127	NJ	OA White	
		TA-4F	153508	H&MS-12	WA	Gray/White	Commander's aircraft
Microscale 48-6	1/48	A-4F	155031	VMA-223	WP	Gray/White	
		A-4F	155009	VA-55	NP	Gray/White	USS Hancock
		A-4E	148609	VC-2	JE	Gray/White	Commander's aircraft, COMFIT Wing One
		A-4E	152098	VC-5	UE	Gray/White	
Microscale 48-49	1/48	A-4F	155022	VA-164	NP	Gray/White	LADY JESSIE from USS Hancock
		A-4F	154998	VA-192	NM	Gray/White	CAG aircraft
		A-4E	151112	VC-1	UA	Gray/White	
		A-4F	154970	VA-22	NE	Gray/White	
Microscale 48-71	1/48	TA-4F	154315	RCVW-4 & VA-45	AD	Gray/White	Commander's aircraft
		TA-4J	153674	VX-4	XF	Gray/White	Sharksmouth on nose
		TA-4F	153468	VF-126	NJ	OA White	Commander's aircraft for Readiness Attack Carrier Air Wing Twelve
Microscale 48-75	1/48	Provides the same markings as Microscale sheet 72-227 except for the Israeli A-4N.					
Microscale 48-213	1/48	Provides the same markings as Microscale sheet 72-436.					
Microscale 48-214	1/48	Provides the same markings as Microscale sheet 72-437.					
Microscale 48-311	1/48	Provides the same markings as Microscale sheet 72-538.					
Microscale 48-312	1/48	Provides the same markings as Microscale sheet 72-539.					
Microscale 48-316	1/48	TA-4J	153672	VA-127	--	Adversary	Brown, green, & gray camouflage
		A-4E	149656	NFWS	--	Adversary	Three-tone gray wraparound camouflage
		TA-4J	153683	VA-137	--	Adversary	Two-tone gray wraparound camouflage scheme
Microscale 48-317	1/48	TA-4J	153512	VF-126	--	Adversary	Dark blue and light gray camouflage
		A-4F	154973	VA-127	--	Adversary	Three-tone blue camouflage
		A-4F	154150	VA-127	--	Adversary	Green, brown, and tan camouflage
		A-4F	151033	NFWS	--	Adversary	Two-tone blue and gray camouflage
Microscale 32-0038	1/32	A-4E	149661	VMA-211	CF	Gray/White	
		A-4E	150105	VMA-311	WL	Gray/White	
		A-4E	150092	VMA-121	VK	Gray/White	
Microscale 32-37	1/32	A-4F	154970	VA-22	NE	Gray/White	
		A-4F	154998	VA-192	NM	Gray/White	CAG aircraft
		A-4E	151118	VF-43	AD	Adversary	Several shades of blue and gray in a wraparound camouflage scheme
Microscale 32-53	1/32	TA-4J	153683	VA-127	--	Adversary	Two shades of gray in a wrap-around camouflage scheme Totally inadequate instructions
Microscale 32-54	1/32	TA-4J	153512	VF-126	--	Adversary	Blue and gray camouflage scheme
		A-4F	154150	VA-127	--	Adversary	Green, brown, and tan camouflage scheme
Microscale 32-65	1/32	A-4F	155022	VA-164	NP	Gray/White	LADY JESSIE from the USS Hancock
		A-4F	154201	VA-23	NM	Gray/White	CAG aircraft from the USS Ticonderoga

These are the readily available decals as of press time for this book, which was December 1988. With the new releases of Skyhawk kits coming out in both 1/72nd and 1/48th scales, it seems a certainty that more decal sheets for the A-4 will be released in the future.

It should be noted that due to a breakup of Krasel Industries, Microscale decals that are for aircraft will be issued under the name Superscale. Most sheets listed here are still sold under the Microscale name. We assume they will continue to be so until present supplies are used up.



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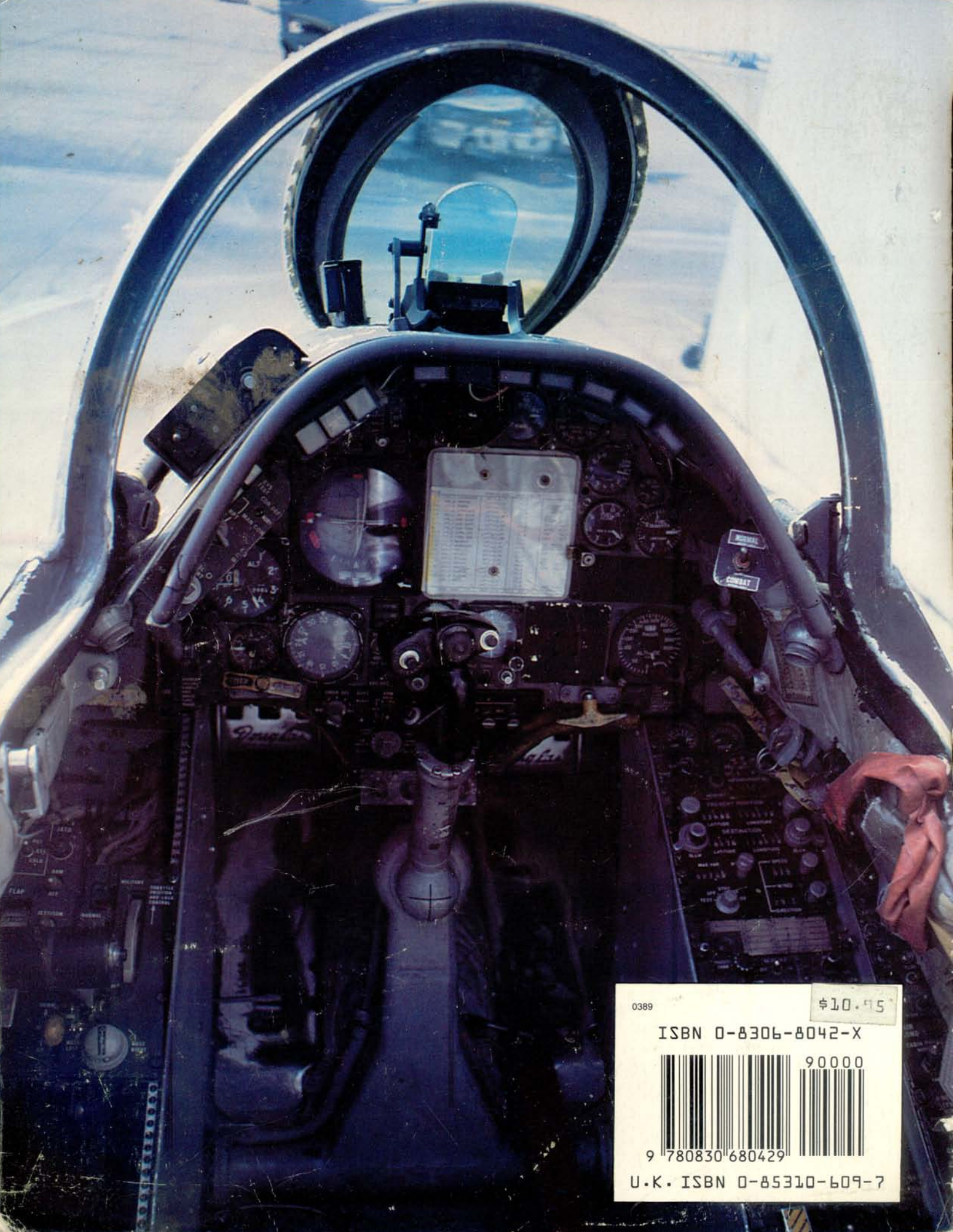

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